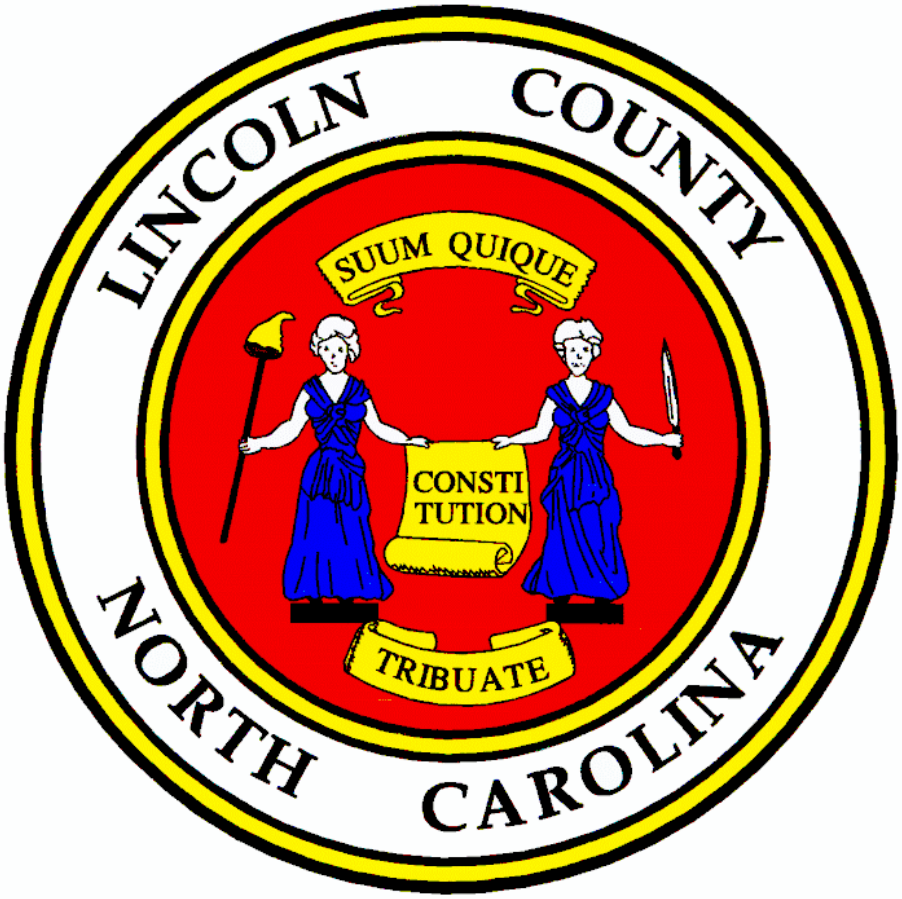
North Carolina Department of Transportation
Transportation Planning Branch

Comprehensive Transportation Plan



Study Report for Lincoln County

March 2006

Comprehensive Transportation Plan
Study Report
for
Lincoln County

Prepared by the: Transportation Planning Branch
N.C. Department of Transportation

In Cooperation with: Lincoln County
The Federal Highway Administration
U.S. Department of Transportation

March 2006

Acknowledgments

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Executive Summary

In July of 2003, the Transportation Planning Branch of the North Carolina Department of Transportation and Lincoln County made a formal agreement to begin work on the Lincoln County Comprehensive Transportation Plan. The resulting Lincoln County Comprehensive Transportation Plan, as shown in **Figure 1**, resulted from the implementation of the transportation planning principles.

It is important to realize that the recommended transportation plan is based upon anticipated growth and development of the planning area reflecting current zonal trends as provided by the planning area. Prior to the construction of specific projects, a more detailed study will be required to reconsider development trends, determine specific design requirements, and further evaluate environmental impacts.

The Comprehensive Transportation Plan for Lincoln County currently includes recommendations for three planning elements: the highway map, the public transportation and rail map, and the bicycle map. The format for the pedestrian map has not been finalized so it was not developed as part of this study. The projected population within the planning area is based on the regional control totals used in the development of the Metrolina Regional Model, which were adopted by Lincoln County and Lake Norman RPO in September 2004. The public transportation and rail element and the bicycle element were developed to reflect the overall goals for the area based on discussions with local planners and the public.

This report documents the findings of this study along with the resulting recommendations for improvements. In addition, this report presents transportation cross-section recommendations, cost estimates for the recommended improvements, and environmental features found in the planning area.

After constant coordination with the planning department and several drop-in sessions with the citizens of the planning area, the Lincoln County Comprehensive Transportation Plan was adopted by the Lincoln County Board of Commissioners on January 23, 2006.

Implementation of the plan rests largely with the policy boards and citizens of the planning area. Transportation needs throughout the State exceed the available funding; therefore, local areas should aggressively pursue funding for the projects they desire.

Adopted by:
Lincoln County
Date: January 23, 2006

NCDOT
Date: March 2, 2006

Endorsed by:
Lake Norman RPO
Date: November 28, 2005

Recommended by:
Transportation Planning Branch
Date: January 31, 2006

CATAWBA COUNTY

CLEVELAND COUNTY

IREDELL COUNTY

MECKLENBURG COUNTY

GASTON COUNTY

See Lincolnton Thoroughfare Plan

Lake Norman

Lincoln County Airport

NOTES:
Format for Sheet 5 Pedestrian map is pending.

Plan date: October 20, 2005

Sheet 1 of 5

Base map date: June 2004

N W E S

0 0.5 1 2 3 Miles

Refer to CTP document for more details

Legend

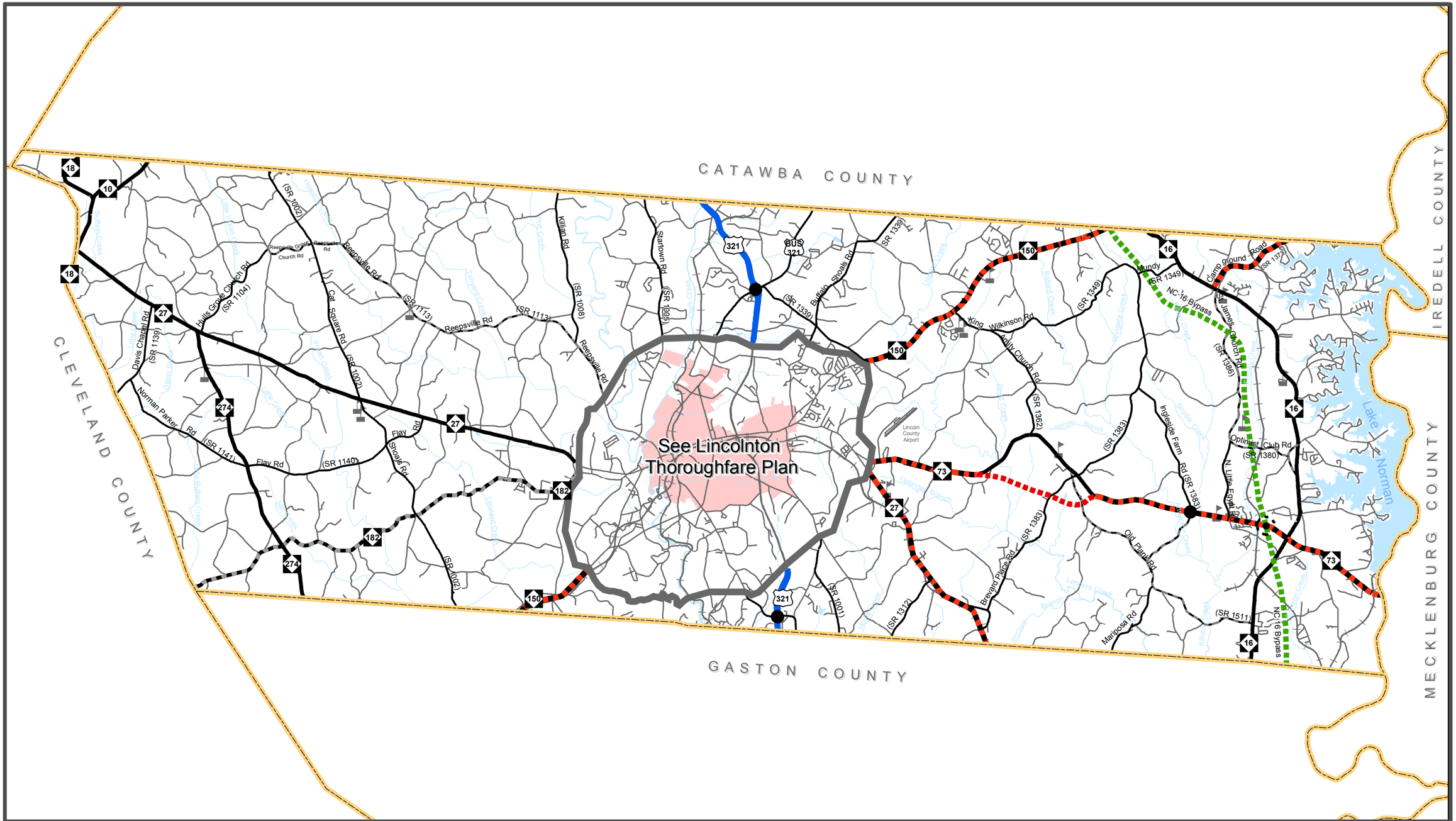
- Schools
- Railroads
- Rivers and Streams
- Lakes
- City Boundary
- Urban Planning Boundary
- County Boundaries

Sheet 1 **Adoption Sheet**
Sheet 2 **Highway Map**
Sheet 3 **Public Transportation and Rail Map**
Sheet 4 **Bicycle Map**
Sheet 5 **Pedestrian Map**

Lincoln County
North Carolina

Comprehensive Transportation Plan

Figure 1 - Sheet 1



Plan date: October 20, 2005

Sheet 2 of 5

Base map date: June 2004

N W E S

0 0.5 1 2 3 Miles

Refer to CTP document for more details

Freeways
- Existing
- Needs Improvement
- Recommended

Expressways
- Existing
- Needs Improvement
- Recommended

Boulevards
- Existing
- Needs Improvement
- Recommended

Other Major Thoroughfares
- Existing
- Needs Improvement
- Recommended

Minor Thoroughfares
- Existing
- Needs Improvement
- Recommended

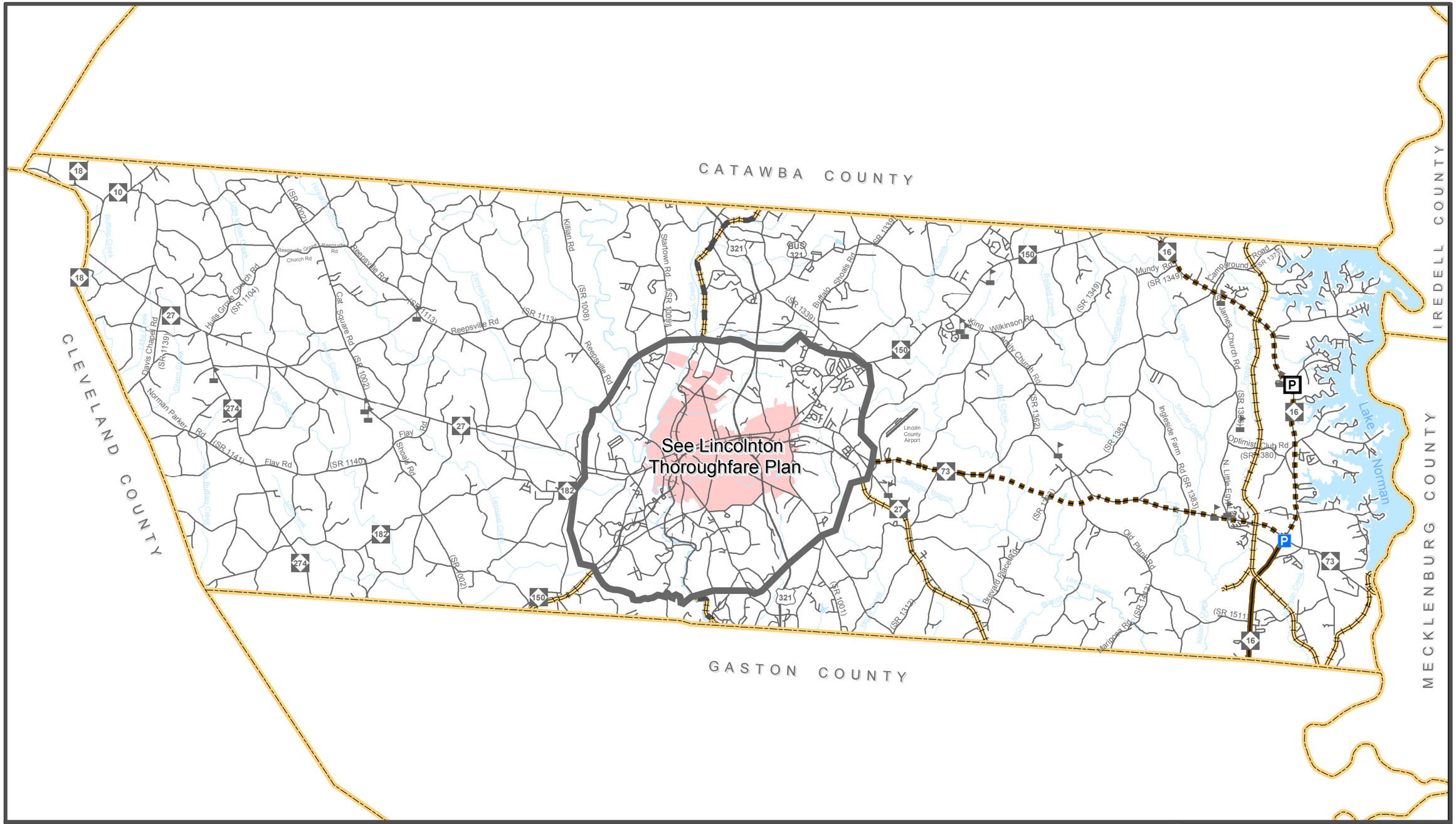
- Existing Interchange
- Proposed Interchange
- Existing Grade Separation
- Proposed Grade Separation

Highway Map

Lincoln County
North Carolina

Comprehensive Transportation Plan

Figure 1 - Sheet 2



Plan date: October 20, 2005

Sheet 3 of 5

Base map date: June 2004

N W E S

0 0.5 1 2 3 Miles

Refer to CTP document for more details

Bus Routes
- Existing
- Needs Improvement
- Recommended

Fixed Guideway
- Existing
- Needs Improvement
- Recommended

Operational Strategies
- Existing
- Needs Improvement
- Recommended

Rail Corridor
- Active
- Inactive
- Recommended

High Speed Rail Corridor
- Existing
- Recommended

Rail Stops
- Existing
- Recommended

Intermodal Connector
- Existing
- Recommended

Park and Ride Lot
- Existing
- Recommended

Public Transportation and Rail Map

Lincoln County
North Carolina

Comprehensive Transportation Plan

Figure 1 - Sheet 3

CATAWBA COUNTY

CLEVELAND COUNTY

IREDELL COUNTY

MECKLENBURG COUNTY

GASTON COUNTY

See Lincolnton Thoroughfare Plan

Lake Norman

Plan date: October 20, 2005

Sheet 4 of 5

Base map date: June 2004

N W E S

0 0.5 1 2 3 Miles

Refer to CTP document for more details

On Road
- Existing
- Needs Improvement
- Recommended

Off Road
- Existing
- Needs Improvement
- Recommended

Bicycle Map

Lincoln County
North Carolina

Comprehensive Transportation Plan

Figure 1 - Sheet 4

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I. Introduction

An area's transportation system is its lifeline, contributing to its economic prosperity and social well being. The importance of a safe and efficient transportation infrastructure cannot be overstressed. This system provides a means of transporting people and goods from one place to another quickly, conveniently, and safely. A well-planned system will meet the existing travel demands, as well as keep pace with the growth of the region. Lincoln County recognized the importance of this process of planning for future transportation needs and requested transportation planning assistance from the Transportation Planning Branch of the North Carolina Department of Transportation (NCDOT) in August, 2002.

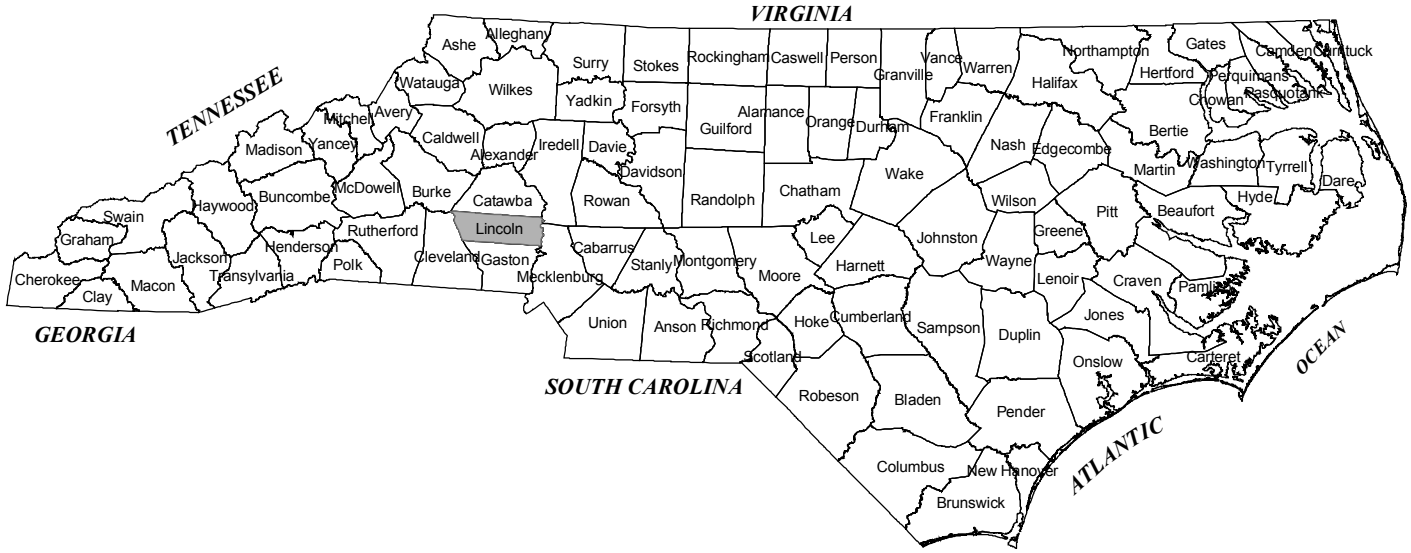
Lincoln County (known throughout the document as the planning area) is located in the western part of North Carolina and is bordered by Catawba, Cleveland, Gaston, Mecklenburg, Burke and Iredell counties. The planning area is approximately twenty miles west of Charlotte. The geographical location of the planning area is shown in **Figure 2**.

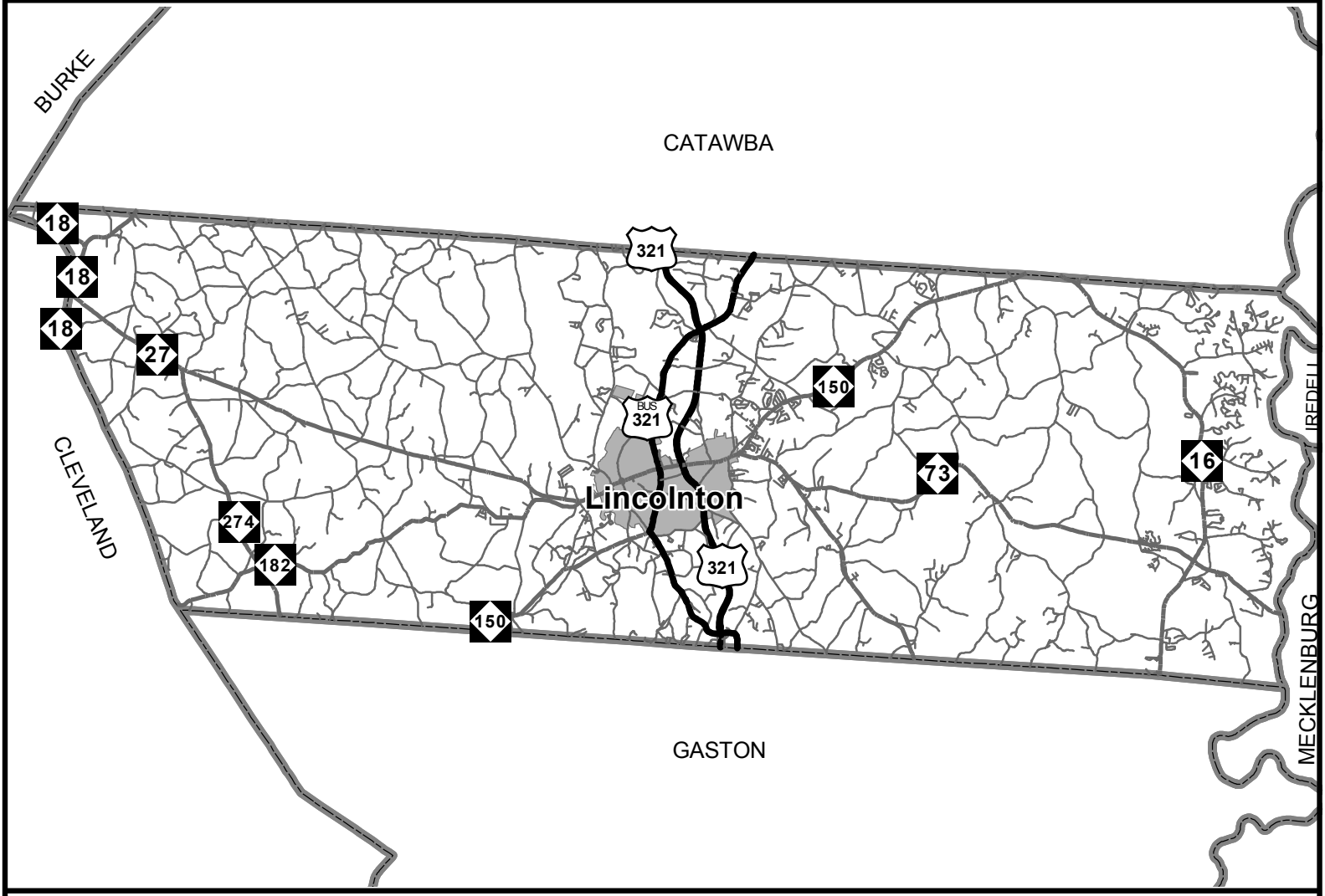
This report documents the development of the 2006 Lincoln County Comprehensive Transportation Plan shown in **Figure 1**. In addition, this report presents recommendations for each mode of transportation included in the plan. A separate report documents the technical analysis completed for this study and is available upon request to the Transportation Planning Branch. A comprehensive transportation plan (CTP) is developed to ensure that the transportation system will be progressively developed to meet the needs of the planning area. It will serve as an official guide to providing a well-coordinated, efficient, and economical transportation system utilizing all modes of transportation. This document will be used by local officials to ensure that planned transportation facilities reflect the needs of the public, while minimizing the disruption to local residents, businesses, and the environment.

The purpose of this study is to examine present and future transportation needs of the planning area and develop a CTP to meet these needs. The plan recommends those improvements that are necessary to provide an efficient transportation system within the 2003-2030 planning period. The recommended cross-sections outlined in **Appendix D** for these improvements are based on existing conditions and projected traffic volumes.

Initiative for implementing the CTP rests predominately with the policy boards and citizens of the planning area. Lincoln County and the North Carolina Department of Transportation share the responsibility for proposed construction. As transportation needs throughout the state exceed available funding, it is imperative that the local planning areas aggressively pursue funding for desired projects.

The proposed CTP is based on the projected growth for the planning area as coordinated with the county planners and the Lake Norman Rural Planning Organization (RPO). It is possible that actual growth patterns will differ from those logically anticipated. As a result, it may be necessary to accelerate or delay the development of some recommendations found on the plan. Some portions of the plan may require revisions in order to accommodate unexpected changes in urban development. Therefore, any changes made to one element of the CTP should be consistent with the other elements.





LINCOLN COUNTY

NORTH CAROLINA

N
W E
S

Legend

- Interstate
- US
- NC
- SR
- Municipal Boundaries

FIGURE 2

GEOGRAPHIC LOCATION

BASE MAP DATE: MARCH 2005

II. Recommendations

One of the most important steps in identifying the transportation recommendations associated with the CTP is making an assessment of the transportation needs. This assessment helps identify what actions should be pursued and the implications involved if a project is not implemented. The problem statements resulting from this assessment help to justify recommended actions and help to define practical alternatives. This chapter presents the recommended improvements and associated problem statements resulting from the transportation needs assessment conducted during the development of the recommended CTP for Lincoln County. These improvements are needed to enable the Lincoln County transportation system to serve anticipated travel desires as this area continues to grow. Some recommendations will involve further research to ensure that the recommendations will accommodate the need and are feasible.

Highway Map

The recommended highway plan for the planning area is presented in **Sheet 2 of Figure 1.** This sheet classifies the major highway system into five categories depending on the type of service each roadway provides. These classifications - freeways, expressways, boulevards, other major thoroughfares, and minor thoroughfares - are described in detail in **Appendix B**. The recommended improvements are also inventoried in **Appendix C**.

The recommended highway map includes several improvements needed to meet future travel demand. These improvements were developed based on the needs assessment, the goals and objectives of the area and the known environmental limitations of the planning area. The following problem statements document the purpose and need for each of the recommended improvements.

See the bicycle recommendations for information regarding NC 182 and Reepsville Road (SR 1113).

Campground Road (SR 1373)

- **Summary of Need**
  There is a need to improve Campground Road within the planning area to accommodate projected traffic volumes and to relieve growing congestion along this facility.
- **Summary of Purpose**
  Improving existing Campground Road should enable the roadway to accommodate projected traffic volumes by providing additional roadway capacity.

- **Roadway Conditions**

  Existing Characteristics

  Campground Road, which runs southwest to northeast in the northern portion of the planning area, links Denver and Keistler Store and provides access to NC 16 and NC 150. The speed limit along this two-lane undivided roadway is 55 mph.

  Existing Conditions

  2003 annual average daily traffic (AADT) volume along Campground Road is 8,600 vehicles per day (vpd). With a current practical capacity[1] of 11,000 vpd, the existing ratio of traffic volume to practical capacity is 0.78, meaning that Campground Road is currently operating at levels satisfactory to users.

  Projected Conditions

  Traffic projected on Campground Road for the year 2030 is 16,800 vpd, which exceeds the current practical capacity.

- **Safety Analysis**

  For the period from January 31, 2001 to December 31, 2004, there were thirty crashes reported along Campground Road. Twenty-four of these occurred at the intersection with NC 16. Of these, eight involved left turns onto Campground Road and six were rear end collisions. After this data was collected, a traffic signal was installed at the intersection with NC 16.

- **System Linkages**

  Existing Road Networks

  Campground Road provides direct connectivity between Denver and Keistler Store in Catawba County and to NC 150 in Catawba County. It is used as a shortcut from Denver to NC 150 rather than traveling on NC 16 to NC 150.

  Transportation Plans

  Campground Road is designated as a Boulevard on the CTP. The existing roadway will need to be widened to a 4-lane divided in order to achieve this type of facility in the future.

- **Social, Economic, and Environmental Conditions**

  Demographics

  The existing minority population along most of Campground Road is the county average, while the income level is about 75% below the county average.

[1] Recommendations for the comprehensive transportation plan are based on the *practical capacity* of the roadway, which is the number of vehicles on a roadway section correlating to high-density traffic bordering on unstable flow. When a roadway is operating at its practical capacity, small increases in traffic flow will cause substantial deterioration in service; the freedom to maneuver is limited resulting in driver discomfort; and minor incidents create substantial traffic backups.

Economic Data

Campground Road is mainly residential with an influx of small businesses. Although no commercial development is proposed in this area, more residential and commercial developments are possible.

Environmental

There are no known natural environmental features in this area. The human environment along Campground Road includes several churches and the Rock Springs Campground, which is a historic site.

- **Cost Estimates**

  The cost estimate for the proposed improvements is based on widening the existing facility to a 4-lane Boulevard facility, mitigating for possible wetland impacts, right-of-way (ROW) costs, and utility relocation costs. The cost estimate for this recommended facility is $31,436,100.

NC 16 Bypass

- **Summary of Need**

  There is a need to alleviate growing congestion on existing NC 16 within the planning area.
- **Summary of Purpose**

  Providing a bypass for existing NC 16 should lower projected traffic volumes on existing NC 16, alleviating congestion on this roadway.
- **Roadway Conditions**

  Existing Characteristics

  NC 16 is a minor arterial on the Federal Functional Classification System. This roadway, which runs from north to south through the planning area, links Maiden to Charlotte. Portions of the roadway are a two-lane cross-section and the remaining portions are a three-lane cross-section. The speed limit along this roadway varies between 45 mph and 55 mph.

  Existing Conditions

  2003 AADT volumes along NC 16 ranged from 7,000 vpd to 20,000 vpd. With a current practical capacity of 13,900 vpd, the existing ratio of traffic volume to practical capacity ranges from 0.50 to 1.44, meaning that some portions of NC 16 are currently operating at levels dissatisfactory to some users.

  Projected Conditions

  Traffic projected on NC 16 for the year 2030 ranges from 11,900 vpd to 38,200 vpd, which will exceed current capacity on NC 16.
- **Safety Analysis**

  For the period from January 31, 2001 to December 31, 2004, there were one hundred sixty crashes reported along NC 16. Twenty-two of these occurred at the intersection with NC 73. Fourteen of these crashes involved rear end collisions.

- **System Linkages**

  Existing Road Networks

  NC 16 provides direct connectivity between Denver and Gaston County. NC 16 is the main access to Lake Norman within Lincoln County. NC 16 is designated as an evacuation route for the McGuire Nuclear Plant. The proposed NC 16 Bypass is designated as a Strategic Highway Corridor (SHC). The designation of 55 SHCs in the state was an initiative intended to develop a network of high-speed, safe, reliable highways through North Carolina that would increase statewide mobility and regional connectivity.

  Transportation Plans

  NC 16 is designated as an Other Major Thoroughfare on the CTP. Construction of the NC 16 Bypass is included in the 2006-2012 TIP as Project R-2206. The current schedule for this project estimates construction to be completed in 2008. The recommended cross-section for this project is a four-lane divided facility on new location.

  Modal Interrelationships

  An existing park and ride lot is located along existing NC 16 at the intersection with NC 73 in Waterside Crossings' parking lot, serving an express bus route. A proposed park and ride lot will be located along existing NC 16 at the intersection with Fairfield Forest Road (SR 1389) in the strip shopping parking lot, serving the proposed express bus route and an existing vanpool. NC 16 Bypass will be in the vicinity of the proposed Killian Creek Path.

- **Social, Economic, and Environmental Conditions**

  Demographics

  The existing minority population along all of NC 16 Bypass is the county average, while the income level from Optimist Club Road (SR 1380) to the Catawba County line is about 75% below the county average.

  Economic Data

  Currently, there are several neighborhood centers and five top twenty industrial manufacturing employers along existing NC 16. Future growth along existing NC 16 is anticipated to include compact neighborhood development and commercial developments, while NC 16 Bypass would include neighborhood development.

  Environmental

  There are several wetlands included in the National Wetland Inventory along the NC 16 Bypass corridor. These are the only known natural environmental features in this area. The human environment along NC 16 Bypass corridor includes several schools and churches.

- **Cost Estimates**

  The cost estimate for the proposed improvements is based on a new location, new bridges, mitigating for possible wetland impacts, right-of-way (ROW) costs, and utility relocation costs. The cost estimate for this recommended facility is $125,762,000.

NC 27

- **Summary of Need**
  There is a need to improve NC 27 from NC 73 to the Gaston County line to accommodate projected traffic volumes and to relieve growing congestion along this facility.
- **Summary of Purpose**
  Improving existing NC 27 should enable the roadway to accommodate projected traffic volumes by providing additional roadway capacity.
- **Roadway Conditions**
  Existing Characteristics
  NC 27 is a major collector on the Federal Functional Classification System. This roadway, which runs from north to south through the southern portion of the planning area, links Lincolnton to Charlotte. The speed limit along this two-lane undivided roadway is 55 mph. Currently, there is little access control along NC 27.

  Existing Conditions
  2003 AADT volumes along NC 27 ranged from 5,800 vpd to 8,400 vpd. With a current practical capacity of 11,000 vpd, the existing ratio of traffic volume to practical capacity ranges from 0.52 to 0.76, meaning that NC 27 is currently operating at levels satisfactory to users.

  Projected Conditions
  Traffic projected on NC 27 for the year 2030 ranges from 10,500 vpd to 15,300 vpd, which will exceed current practical capacity of this roadway.
- **Safety Analysis**
  For the period from January 31, 2001 to December 31, 2004, there were six crashes reported along NC 27. All of these occurred at the intersection with Orchard Road (SR 1358) and four of these crashes involved rear end collisions.
- **System Linkages**
  Existing Road Networks
  NC 27 provides direct connectivity between Lincolnton and Mecklenburg County and serves as an indirect link between Lincoln County and other neighboring counties via NC 73 and NC 150.

  Transportation Plans
  NC 27 is a Boulevard on the CTP. The existing roadway will need to be widened to a four-lane divided roadway in order to achieve this type of facility in the future.
- **Social, Economic, and Environmental Conditions**
  Demographics
  The minority population along most of NC 27 is the county average. The income level along NC 27 is 75% below the county average.

Economic Data
There are several undeveloped land parcels along NC 27 with some commercial development in Iron Station and Timken Industrial Plant. There are no proposed commercial developments in this area.

Environmental
There are no known natural environmental features in this area. The human environment along NC 27 corridor includes several churches and a school.

- **Cost Estimates**
  The cost estimate for the proposed improvements for NC 27 from NC 73 to the Gaston County line is based on widening the existing facility to a 4-lane Boulevard facility, mitigating for possible wetland impacts, right-of-way (ROW) costs, and utility relocation costs. The cost estimate for this recommended facility is $70,012,900.

NC 73

- **Summary of Need**
  There is a need to improve NC 73 within the planning area to accommodate projected traffic volumes and to relieve growing congestion along this facility.
- **Summary of Purpose**
  Improving existing NC 73 should enable the roadway to accommodate projected traffic volumes by providing additional roadway capacity.
- **Roadway Conditions**

  Existing Characteristics
  NC 73 is a minor arterial on the Federal Functional Classification System. This roadway, which runs from east to west through the eastern portion of the planning area, links Lincolnton, Huntersville, and Concord and provides access to I-77 and I-85. The speed limit along this two-lane undivided roadway varies between 45 mph and 55 mph. Currently, there is little access control along NC 73 and many of the intersections are signalized.

  Existing Conditions
  2003 AADT volumes along NC 73 ranged from 7,000 vpd to 17,000 vpd. With a current practical capacity of 11,000 vpd, the existing ratio of traffic volume to practical capacity ranges from 0.18 to 1.54, meaning that some portions of NC 73 are currently operating at levels dissatisfactory to some users.

  Projected Conditions
  Traffic projected on NC 73 for the year 2030 ranges from 13,500 vpd to 38,400 vpd, which exceeds current practical capacity.
- **Safety Analysis**
  For the period from January 31, 2001 to December 31, 2004, there were seventy crashes reported along NC 73. Fourteen of these occurred at the intersection with Pilot Knob Road (SR 1394). Five of these fourteen crashes were rear end collisions, while three collisions occurred due to left turns from

different roadways. After this data was collected, a traffic signal was installed at the intersection with Pilot Knob Road.

- **System Linkages**

  Existing Road Networks

  NC 73 provides direct connectivity between Lincolnton and Mecklenburg County and serves as an indirect link between Lincoln County and other neighboring towns and counties via I-85 and I-77. NC 73 will also serve as a link to the planned NC 16 Bypass, providing better access to Charlotte and Gastonia.

  Transportation Plans

  NC 73 is designated as a Boulevard on the CTP. The existing roadway will need to be widened to a four-lane divided roadway with wide outside lanes in order to achieve this type of facility in the future. NC 73 is designated as a SHC. There is a project for NC 73 that is included in the 2006-2012 Transportation Improvement Program (TIP) as Project R-2706. The recommended cross-section for this project is a multi-lane facility. The portion of NC 73 in Lincoln County is also included in the NC 73 Transportation/ Land Use Corridor Plan. This plan is a comprehensive land use, urban design and transportation plan that incorporates existing and anticipated land use and transportation patterns for the eight local governments in Lincoln County, Cabarrus County and Mecklenburg County along NC 73. This plan recommends widening NC 73 to a four-lane divided facility within Lincoln County. Depending on the location, this four-lane divided facility is classified as a rural parkway, rural boulevard, or suburban boulevard. The proposed speed limit along this roadway varies between 35 mph to 45 mph.

  Modal Interrelationships

  NC 73 is designated as part of NC Bike Route 6 (Piedmont Spur), which is a 200-mile southern alternate to the Piedmont portion of the Mountains to Sea bike route. In addition, NC 73 will connect to the proposed Lake Norman Bicycle Route. An existing park and ride lot is located along NC 73 at NC 16 in Waterside Crossings' parking lot, serving the express bus route. NC 73 is also the route for a proposed express bus service between Lincolnton and Charlotte.

- **Social, Economic, and Environmental Conditions**

  Demographics

  Existing residential development along NC 73 is growing between the East Lincoln High School and Elementary School. Current projections suggest that this residential development will increase over the course of the planning period. The existing minority population along most of NC 73 is about twice the county average, while the income level is about 75% below the county average.

  Economic Data

  Historically, the economic base surrounding the NC 73 area was predominately farming. Currently, there are several undeveloped land

parcels along NC 73 and two strip shopping centers at the intersection of NC 16 and NC 73. Future economic growth along NC 73 is anticipated to include mostly commercial developments.

Environmental

There are several wetlands included in the National Wetland Inventory along the NC 73 corridor. This is the only known natural environmental feature in this area. The human environment along the NC 73 corridor includes several schools and churches.

- **Cost Estimates**

  The cost estimate for the proposed improvements is based on widening the existing facility to a 4-lane boulevard facility with a section on new location from Reinhardt Circle (SR 1509) to 0.65 miles east of Old Plank Road (SR 1551), widening the existing bridges, mitigating for possible wetland impacts, right-of-way (ROW) costs, and utility relocation costs. The cost estimate for this recommended facility is $91,537,300.

NC 150

- **Summary of Need**

  There is a need to improve NC 150 within the planning area to accommodate projected traffic volumes and to relieve growing congestion along this facility.
- **Summary of Purpose**

  Improving existing NC 150 should enable the roadway to accommodate projected traffic volumes by providing additional roadway capacity.
- **Roadway Conditions**

  Existing Characteristics

  NC 150 is a minor arterial on the Federal Functional Classification System. This roadway, which runs southwest to northeast through the planning area, links Cherryville, Lincolnton, and Mooresville and provides access to I-77. The speed limit along this two-lane undivided roadway is 55 mph. Currently, there is little access control along NC 150.

  Existing Conditions

  2003 AADT volumes along NC 150 ranged from 6,900 vpd to 9,500 vpd. With a current practical capacity of 11,000 vpd, the existing ratio of traffic volume to practical capacity ranges from 0.63 to 0.86, meaning NC 150 is currently operating at levels satisfactory to users.

  Projected Conditions

  Traffic projected on NC 150 for the year 2030 ranges from 9,700 vpd to 13,800 vpd, which exceeds the current practical capacity.
- **Safety Analysis**

  For the period from January 31, 2001 to December 31, 2004, there were fifty crashes reported along NC 150. Sixteen of these occurred at the intersection with Shuford Road (SR 1339) and five of these crashes involved rear end collisions.

- **System Linkages**

  Existing Road Networks

  NC 150 provides direct connectivity between Mooresville and Cherryville. NC 150 will also serve as a link to the planned NC 16 Bypass, providing better access to Charlotte and Gastonia.

  Transportation Plans

  NC 150 is designated as a Boulevard on the CTP. The existing roadway will need to be widened to a four-lane divided roadway in order to achieve this type of facility in the future. The southern portion of NC 150 from Cherryville to Lincolnton is designated as a SHC. There is a project for the southern portion of NC 150 that is included in the 2006-2012 Transportation Improvement Program (TIP) as Project R-0617. Preliminary plans are being developed for the portion of this project from west of Indian Creek to US 321 at Lincolnton. The recommended cross-section for this project is a multi-lane facility with part on new location. The northeastern portion of NC 150 from NC 27 in Lincolnton to NC 16 Bypass in Catawba County is included in the 2006-2012 TIP as Project R-2307. This portion of R-2307 has been fully planned and designed and is scheduled for construction sometime after 2012. The recommended cross-section for this project is a multi-lane facility.

- **Social, Economic, and Environmental Conditions**

  Demographics

  The existing minority population along most of NC 150 is about twice the county average, while the income level is about 75% below the county average.

  Economic Data

  Currently, the economic base surrounding the NC 150 area is agriculture. There are several commercial developments located at the intersection of NC 16 and NC 150 in Lincolnton and in Crouse. There are no proposed commercial developments in this area.

  Environmental

  There are several wetlands included in the National Wetland Inventory along NC 150. This is the only known natural environmental feature in this area. The human environment along the NC 150 corridor includes several churches and a school.

- **Cost Estimates**

  The cost estimate for the proposed improvements outside of the Lincolnton planning boundary is based on widening the existing facility to a 4-lane Boulevard facility, mitigating for possible wetland impacts, right-of-way (ROW) costs, and utility relocation costs. The cost estimate for this recommended facility is $45,546,000.

Other Recommendations

Widening Projects

The following facilities are recommended to be widened to improve safety and capacity. Each of the sections of roadway listed currently has lane widths less than 12 feet and is recommended to be widened to two 12-foot lanes. In addition, the first seven are designated as evacuation routes according to McGuire Nuclear Plant and conversations with the Lincoln County Emergency Management, and should have priority for improvements. Prior to any roadway improvements, the NCDOT Division of Bicycle and Pedestrian Transportation should be consulted on the most appropriate cross-section.

Evacuation Routes

- **Amity Church Road (SR 1362),** from King Wilkinson Road (SR 1349) to NC 73
- **Brevard Place Road/Beth Haven Church Road (SR 1360),** from NC 27 to King Wilkinson Road (SR 1349)
- **Little Egypt Road/Saint James Church Road (SR 1386),** from NC 16 to NC 73
- **King Wilkinson Road/Mundy Road (SR 1349),** from NC 150 to NC 16
- **Old Plank Road (SR 1511),** from NC 73 to NC 16
- **Optimist Club Road (SR 1380),** from Little Egypt Road (SR 1386) to Triangle Circle (SR 1388)
- **Triangle Circle (SR 1388),** from NC 16 to NC 16

Other routes

- **Buffalo Shoals Road (SR 1003),** from Shuford Road (SR 1339) to Catawba County Line
- **Cat Square/Shoal Road (SR 1002),** from Catawba County Line to Gaston County Line
- **Davids Chapel Road (SR 1139),** from Cleveland County Line to NC 27
- **Devine Road (SR 1312),** from NC 27 to Gaston County Line
- **Flay Road (SR 1140),** from NC 274 to NC 27
- **Hulls Grove Church Road (SR 1104/ SR 1111),** from Reepsville Road (SR 1113) to NC 27
- **Ingleside Farm Road (SR 1383),** from Beth Haven Road (SR 1360) to Old Plank Road (SR 1511)
- **Killian Road (SR 1008),** from Catawba County Line to Lincolnton City Limits
- **King Wilkinson Road (SR 1349),** from NC 16 to NC 150
- **Mariposa Road (SR 1412),** from Gaston County Line to Old Plank Road (SR 1511)
- **NC 274,** from Gaston County Line to NC 27
- **Norman Parker Road (SR 1141),** from Davids Chapel Road (SR 1139) to Flay Road (SR 1140)
- **Old Plank Road (SR 1511),** from NC 73 to NC 16

- **Philadelphia Church Road (SR 1001),** from Gaston County Line to Salem Church Road (SR 1001)
- **Shuford Road (SR 1339),** from US 321 to NC 150
- **Startown Road (SR 1005),** from Catawba County Line to Reepsville Road (SR 1113)

Public Transportation and Rail Map

The Public Transportation and Rail map of the CTP is an innovative way to consider other modes of transportation and give the public other options of traveling from one place to another place. Today, the emphasis is on obtaining a balance between a walking society and a riding society. The recommended public transportation and rail map for the planning area is presented in **Sheet 3 of Figure 1**. The classifications for this map are described in detail in **Appendix B.** The recommended improvements are also inventoried in **Appendix C**.

Public Transportation Recommendations

Public transportation is evident throughout Lincoln County. There are several different public transportation services within the county, including a vanpool and express bus system. Any future public transportation endeavors should be coordinated with the County and the City of Lincolnton. Vanpools and future express bus systems should be coordinated between the County and the Charlotte Area Transit System (CATS). Another option for future transportation endeavors is the Share the Ride NC program, which matches commuters interested in forming or joining a van or car pool. The program's partners include the NCDOT and the CATS.

The recommended public transportation map includes several proposals needed to meet future travel demand. These improvements were developed based on the needs assessment, the goals and objectives of the area and the known environmental limitations of the planning area. Some recommendations will involve further research to ensure that the recommendations will accommodate the need and are feasible. The following problem statements document the purpose and need for each of the recommended improvements.

Park and Ride Lot

- **Summary of Need**
  A park and ride lot at the intersection of NC 16 and Fairfield Forest Road (SR 1389) is proposed to promote carpooling and use of the future express bus service. This will also alleviate growing congestion along existing NC 16 in Lincoln County.
- **Summary of Purpose**
  The primary purpose of this recommendation is to promote carpools, vanpools, bicycling, and walking within this area and to provide relief from future congestion on NC 16. Growth in the area is expected to increase through the year 2030, resulting in increased travel between the planning area and neighboring cities. This facility will allow people to bicycle or walk to the park and ride lot from their homes to commute to work by way of a vanpool, decreasing the vehicular traffic on existing NC 16.
- **System Linkages**
  The location of the proposed park and ride lot allows owners of single occupancy vehicles to park a vehicle and take the proposed express bus

along NC 16 to the Charlotte area. The proposed park and ride lot is a direct link to a proposed on-road and off-road bicycle facility.

- **Social, Economic, and Environmental Conditions**

  Demographics

  The existing minority population and the existing income level around the park and ride lot is similar to the county average.

  Economic Data

  Currently, there are several undeveloped land parcels in the vicinity of the NC 16 and Fairfield Forest Road and a strip shopping center containing a public library and grocery store. Although no commercial development is proposed in this area, residential development is possible.

  Environmental

  There are no known natural environmental features in this area. The human environment near the park and ride lot includes a church and a school.

- **Cost Estimates**

  The cost estimate for the proposed improvements is based on landscaping, lighting, mitigating for possible wetland impacts, ROW costs, and utility relocation costs. The cost estimate for this recommended facility is $150,000. However, the cost could be lower if an arrangement could be made with the strip development to utilize their existing parking lot.

NC 16 Express Bus Service

The NC 16 express bus service is designated as a proposed operational strategy on the CTP. This facility is a congestion mitigation air quality (CMAQ) project numbered 4945. The proposed service will be an expansion of the CATS 88X Express Bus service between Charlotte and Denver. The goal of the expansion is to add two extra runs, resulting in a total of four morning bus runs and four evening bus runs.

NC 73 Express Bus Service

The NC 73 express bus service is designated as a proposed operational strategy on the CTP. The proposed service will take passengers from Charlotte to Lincolnton along NC 16 and NC 73.

Rail Recommendations

Railroads were the backbone of the transportation system in the United States in the early 1900s. The railroads generated most of their revenue through delivering freight. In the 1920s, society moved toward the automobile as their source of transportation. Today, the trends are seeing an increase of rail freight and passenger services including commuting to work.

The planning area currently has several active rail freight corridors. The CSX Railroad owns 1,200 miles of track in North Carolina. One of the CSX mainline tracks travels from Johnson City, TN through Lincolnton to Charlotte, NC, which

is only a freight railroad. There are no plans for this section of track to accommodate passenger service. There are no rail recommendations for Lincoln County. A rail inventory can be found in **Appendix C**.

Bicycle Map

The NCDOT envisions that all citizens of North Carolina and visitors to the state should be able to walk and bicycle safely and conveniently to their chosen destinations with reasonable access to roadways. Information on events, funding, maps, policies, projects, and processes dealing with these modes of transportation is available by contacting the NCDOT Division of Bicycle and Pedestrian Transportation.

The recommended bicycle map for the planning area is presented in **Sheet 4 of Figure 1.** This map classifies the bicycle routes into two categories depending on the type of service each route provides. These classifications – on-road and off-road – are described in detail in **Appendix B**. The recommended improvements are also inventoried in **Appendix C**.

For the period from 1997 to 2003, there were twelve bicycle crashes reported in the Lincoln County planning area. Seven of these occurred on NC routes, while five occurred on secondary roads.

The recommended bicycle map includes several improvements needed to meet future travel. These improvements were developed based on the needs assessment, the goals and objectives of the area and the known environmental limitations of the planning area. All of the on-road bicycle routes are shown on the highway map as needs improvement. The following problem statements document the purpose and need for each of the recommended improvements.

Catawba River Path

- **Summary of Need**
  There is a need to connect neighborhoods and facilitate non-vehicular travel in the area from Killian Road (SR 1008) to Lincolnton.
- **Summary of Purpose**
  The purpose is to provide connectivity enabling bicycling and walking within this area to the proposed park along Killian Road (SR 1008) and to Lincolnton.
- **System Linkages**
  Transportation Plans
  Catawba River is designated as an off-road bicycle facility on the CTP and is included as a recommendation of the Lincoln County Comprehensive Land Use Plan.
- **Social, Economic, and Environmental Conditions Networks**
  Demographics
  The existing minority population and the income level along the Catawba River is similar to the county average.

  Economic
  Significant agricultural land and forests are prevalent along the Catawba River off-road bicycle facility. Currently, there are several undeveloped

land parcels along the proposed Catawba River off-road bicycle facility. Although no commercial development is proposed in this area, residential development is possible.

Environmental
There are several wetlands included in the National Wetland Inventory along the proposed Catawba River off-road bicycle facility. There are no other known natural and human environmental features in the area.

- **Cost Estimates**
  The cost estimate for this recommendation is based on a multi-use path from Killian Road (SR 1008) to the Lincolnton planning boundary, bridges, ROW costs, and mitigating for possible impacts to wetlands. The cost estimate for this recommended facility is $1,930,900.

Fairfield Forest Road (SR 1389)

- **Summary of Need**
  There is a need to improve Fairfield Forest Road within the planning area to provide a safer bicycle facility and to provide access to the proposed park and ride lot.
- **Summary of Purpose**
  Improving Fairfield Forest Road should enable the roadway to accommodate automobiles and bicycles, while providing a safer facility for cyclists and promoting vanpools, bicycling, and walking within this area.
- **Roadway Conditions**
  Existing Characteristics
  Fairfield Forest Road, which runs from east to west through the eastern portion of the planning area, links NC 16 to the Lake Norman Bicycle Route. The roadway is a two-lane undivided cross-section, approximately twenty feet in width. Currently, bicyclists travel this roadway.
- **System Linkages**
  Transportation Plans
  Fairfield Forest Road is designated as an on-road bicycle facility on the CTP. The existing roadway will need to be widened to a two-lane undivided four-foot wide shoulder curb and gutter roadway in order to achieve this type of facility in the future.

  Modal Interrelationships
  This on-road facility will connect to the proposed park and ride lot located at the intersection of Fairfield Forest Road and NC 16, to a public garden, and to a strip shopping center. There are also several golf cart and pedestrian crossings along Fairfield Forest Road.
- **Social, Economic, and Environmental Conditions Networks**
  Demographics
  The existing minority population and the income level along Fairfield Forest Road is similar to the county average.

Economic Data
Currently, the land surrounding Fairfield Forest Road is filled with residential development. There is a strip shopping center containing a public library and businesses at the intersection of Fairfield Forest Road and NC 16. Although no commercial development is proposed in this area, residential development is possible.

Environmental
There are no known natural environmental features in this area. The human environment along Fairfield Forest Road includes a church.

- **Cost Estimates**
  The cost estimate for this recommendation is based on widening the existing roadway to NCDOT standards, adding an additional four foot shoulder for bicyclists, and mitigating for possible impacts to wetlands. The cost estimate for this recommended facility is $536,900.

Fairfield Forest Road Path

- **Summary of Need**
  There is a need to connect neighborhoods and facilitate non-vehicular travel in the area.
- **Summary of Purpose**
  The purpose is to provide connectivity enabling bicycling and walking within this area to the East Lincoln Park.
- **System Linkages**
  Transportation Plans
  Fairfield Forest Road Path is designated as an off-road bicycle facility on the CTP and is included as a recommendation of the Lincoln County Comprehensive Land Use Plan.

  Modal Interrelationships
  Fairfield Forest Road Path will connect to the proposed Lake Norman Bicycle Route, the proposed Fairfield Forest Road on-road bicycle facility, the proposed West Webbs Road Path, the proposed Optimist Club Road on-road bicycle facility, and the proposed park and ride lot located at the intersection of NC 16 and Fairfield Forest Road (SR 1389).
- **Social, Economic, and Environmental Conditions Networks**
  Demographics
  The existing minority population and the income level along Fairfield Forest Road Path is similar to the county average.

  Economic
  There are several undeveloped land parcels along Fairfield Forest Road Path. However, though no commercial development is proposed in this area, residential development is possible.

  Environmental
  There are several wetlands included in the National Wetland Inventory along Fairfield Forest Road Path. This is the only known natural

environmental feature in this area. The human environment along Fairfield Forest Road Path includes a public park/ community center on Optimist Club Road (SR 1380).

- **Cost Estimates**
  The cost estimate for this recommendation is based on a multi-use path, ROW costs, and mitigating for possible impacts to wetlands. The cost estimate for this recommended facility is $1,379,100.

Forney Creek Path

- **Summary of Need**
  There is a need to connect neighborhoods and facilitate non-vehicular travel in the area from NC 73 near the railroad to NC 73 near Ingleside Farm Road (SR 1383).
- **Summary of Purpose**
  The purpose is to provide connectivity enabling bicycling and walking within this area to the proposed park near Ingleside Farm Road (SR 1383).
- **System Linkages**

  Existing Bicycle Networks
  The proposed Forney Creek off-road bicycle facility will connect to the existing NC Bike Route 6 (Piedmont Spur) at NC 73. Forney Creek will provide a link to the East Lincoln Middle School and the proposed park near Ingleside Farm Road (SR 1383). It will also provide access to the Duke Power Plant and to the Lake Norman Quarry.

  Transportation Plans
  Forney Creek is designated as an off-road bicycle facility on the CTP beginning at NC 73 south and continuing north to loop back into NC 73 and is included as a recommendation of the Lincoln County Comprehensive Land Use Plan.

  Modal Interrelationships
  The proposed Forney Creek off-road bicycle facility will connect to the existing NC Bike Route 6 (Piedmont Spur) at NC 73. Forney Creek off-road bicycle facility will also connect to the proposed Killian Creek off-road bicycle facility and to Optimist Club Road on-road bicycle facility.
- **Social, Economic, and Environmental Conditions Networks**

  Demographics
  Current projections suggest that residential development will increase over the course of the planning period. The existing minority population along Forney Creek is similar to the county average, while the income level is about 75% below the county average.

  Economic
  The land area within Forney Creek is predominately rural, but growing in residential development. Future economic growth along the proposed Forney Creek off-road bicycle facility is anticipated to include several mixed-use developments.

Environmental

There are several wetlands Included in the National Wetland Inventory along the proposed Forney Creek off-road bicycle facility. This is the only known natural environmental feature in this area. The human environment along the proposed Forney Creek off-road bicycle facility includes several schools.

- **Cost Estimates**

  The cost estimate for this recommendation is based on a multi-use path, bridges, ROW costs, and mitigating for possible impacts to wetlands. The cost estimate for this recommended facility is $2,515,600.

Howards Creek Path

- **Summary of Need**

  There is a need to connect neighborhoods and facilitate non-vehicular travel in the area from Reepsville Road (SR 1113) to the Lincolnton planning boundary.

- **Summary of Purpose**

  The purpose is to provide connectivity enabling bicycling and walking within this area to Union Elementary School, to the proposed park near Reepsville Road and Carisler Road, and to Lincolnton.

- **System Linkages**

  Transportation Plans

  Howards Creek is designated as an off-road bicycle facility on the CTP and is included as a recommendation of the Lincoln County Comprehensive Land Use Plan.

  Modal Interrelationship

  The proposed Howards Creek off-road bicycle facility will connect to the existing NC Bike Route 6 (Piedmont Spur) at Reepsville Road (SR 1113) and Cansler Road (SR 1197). Howards Creek off-road bicycle facility will also connect to the proposed Catawba River off-road bicycle facility.

- **Social, Economic, and Environmental Conditions Networks**

  Demographics

  The existing minority population along Howards Creek is similar to the county average, while the income level is about 75% below the county average.

  Economic

  Currently, there are several undeveloped land parcels and the Union Elementary School along the proposed Howards Creek off-road bicycle facility. There are no proposed commercial developments in this area.

  Environmental

  There are several wetlands included in the National Wetland Inventory along Howards Creek. There are no other known natural and human environmental impacts in the area.

- **Cost Estimates**
  The cost estimate for this recommendation is based on a multi-use path, bridges, ROW costs, and mitigating for possible impacts to wetlands. The cost estimate for this recommended facility is $4,539,900.

Inactive Rail Corridor

- **Summary of Need**
  There is a need to connect neighborhoods and facilitate non-vehicular travel in the area from the Catawba County line to the Lincolnton planning boundary.
- **Summary of Purpose**
  The purpose is to provide connectivity enabling bicycling and walking within this area to Lincolnton and to the proposed park near Summerow Road (SR 1279).
- **System Linkages**

  Existing Bicycle Networks
  The proposed Inactive Rail Corridor provides direct connectivity between Lincoln County and other neighboring counties. The proposed Inactive Rail Corridor will also serve as a link to the existing Marcia H. Cloninger Rail-Trail located in Lincolnton.

  Transportation Plans
  The Inactive Rail Corridor is designated as an off-road bicycle facility on the CTP and is included as a recommendation of the Lincoln County Comprehensive Land Use Plan.

  Modal Interrelationships
  The proposed Inactive Rail Corridor will connect to the existing Marcia H. Cloninger Rail-Trail in addition to utilizing an old railroad bed.
- **Social, Economic, and Environmental Conditions Networks**

  Demographics
  The existing minority population along the inactive rail corridor is similar to the county average to two times the county average, while the income level is similar to the county average.

  Economic
  Currently, farmland and residential development can be found along the Inactive Rail Corridor. There are also several undeveloped land parcels. Although no commercial development is proposed in this area, residential development is possible.

  Environmental
  There are several wetlands included in the National Wetland Inventory along the Inactive Rail Corridor. There are no other known natural or human environmental features in this area.

- **Cost Estimates**
  The cost estimate for this recommendation is based on a multi-use path, bridges, ROW costs, and mitigating for possible impacts to wetlands. The cost estimate for this recommended facility is $2,640,000.

Killian Creek Path

- **Summary of Need**
  There is a need to connect neighborhoods and facilitate non-vehicular travel in the area from NC 73 near the railroad north towards Optimist Club Road and south near Ingleside Farm Road (SR 1383).
- **Summary of Purpose**
  The purpose is to provide connectivity enabling bicycling and walking within this area to the East Lincoln Recreational and Community Center on Optimist Club Road (SR 1380).
- **System Linkages**

  Existing Bicycle Networks
  The proposed Killian Creek off-road bicycle facility will connect to the existing NC Bike Route 6 (Piedmont Spur) at NC 73. Killian Creek will also provide a link to the East Lincoln Middle School, the East Lincoln Park, and the proposed park near Ingleside Farm Road (SR 1383).

  Transportation Plans
  Killian Creek is designated as an off-road bicycle facility on the CTP beginning at NC 73 and continuing north towards Optimist Club Road (SR 1380) to loop back into NC 73 and is included as a recommendation of the Lincoln County Comprehensive Land Use Plan.

  Modal Interrelationships
  The proposed Killian Creek off-road bicycle facility will connect to the existing NC Bike Route 6 (Piedmont Spur) at NC 73. Killian Creek off-road bicycle facility will also connect to the proposed Forney Creek off-road bicycle facility and to Optimist Club Road on-road bicycle facility.
- **Social, Economic, and Environmental Conditions Networks**

  Demographics
  The existing minority population along Killian Creek is similar to the county average, while the income level is about 75% below the county average.

  Economic
  The land area within Killian Creek is predominately rural, but growing in residential development. Future economic growth along the proposed Killian Creek off-road bicycle facility is anticipated to include several mixed-use developments such as an office center and the development of a park near NC 16 Bypass.

  Environmental
  There are several wetlands included in the National Wetland Inventory along the proposed Killian Creek off-road bicycle facility. There are no

other known natural environmental features in this area. The human environment along the proposed Killian Creek off-road bicycle facility includes several schools.

- **Cost Estimates**
  The cost estimate for this recommendation is based on a multi-use path, bridges, ROW costs, and mitigating for possible impacts to wetlands. The cost estimate for this recommended facility is $3,049,800.

Lake Norman Bicycle Route

- **Summary of Need**
  There is a need to connect neighborhoods and facilitate non-vehicular travel in the area.
- **Summary of Purpose**
  The purpose is to provide connectivity that should promote bicycling and walking within this area, while promoting a healthy lifestyle.
- **System Linkages**
  Transportation Plans
  The proposed Lake Norman Bicycle Route is designated as an on-road and off-road bicycle facility on the CTP. The existing roadways will need to be widened to have a four-foot shoulder in order to achieve this type of facility in the future.

  Modal Interrelationships
  The proposed Lake Norman Bicycle Route is designated as a 150-mile loop around Lake Norman through four counties. This facility will connect to the existing NC Bike Route 6 (Piedmont Spur) at NC 73 and the proposed on-road bicycle facilities recommended along Webbs Road and Fairfield Forest Road.
- **Social, Economic, and Environmental Conditions Networks**
  Demographics
  The existing minority population and the income level along the Lake Norman Bicycle Route is similar to the county average.

  Economic
  Currently, there are several residential developments along the proposed Lake Norman Bicycle Route. However, some schools and businesses are scattered throughout the corridor. Future growth along the proposed Lake Norman Bicycle Route is anticipated to include mostly residential and commercial developments.

  Environmental
  There are several wetlands Included in the National Wetland Inventory along the proposed Lake Norman Bicycle Route. This is the only known natural environmental feature in this area. The human environment along the proposed Lake Norman Bicycle Route includes several churches.
- **Cost Estimates**
  The Centralina Council of Governments is overseeing this recommendation and does not have a cost estimate at this time.

NC 10

- **Summary of Need**
  There is a need to improve NC 10 within the planning area to provide a safer bicycle facility.
- **Summary of Purpose**
  Improving the existing NC 10 should enable the roadway to accommodate automobiles and bicycles, while providing a safer facility for cyclists.
- **Roadway Conditions**

  Existing Characteristics
  NC 10 is a minor arterial on the Federal Functional Classification System. This roadway, which runs from southwest to northeast in the northwestern portion of the planning area, links Cleveland County to Catawba County. The roadway is a two-lane undivided cross-section, approximately twenty to twenty-four feet in width with a speed limit of 55 mph.

  Existing Conditions
  2003 AADT volumes range from 1,700 vpd to 4,400 vpd. With a current practical capacity of 11,000 vpd, the existing ratio of traffic volume to practical capacity ranges from 0.15 to 0.4, meaning NC 10 is currently operating at levels satisfactory to users.

  Projected Conditions
  Little growth is anticipated in this area. Traffic projected on NC 10 for the year 2030 ranges from 6,500 vpd to 7,000 vpd, which is well below the current practical capacity.
- **System Linkages**

  Existing Bicycle Networks
  NC 10 is designated as part of the NC Bike Route 6 (Piedmont Spur) which serves as a 200-mile southern alternate to the Piedmont portion of the NC Bike Route 2 (Mountains to Sea). These two routes meet in Burke County and in Alamance County.

  Transportation Plans
  NC 10 is designated as an on-road bicycle facility and an Other Major Thoroughfare on the CTP. The existing roadway will need to be widened to have a four-foot wide shoulder in order to achieve this type of facility in the future. NC 10 or NC 6-bicycle route is included as a designated state bicycle route.
- **Social, Economic, and Environmental Conditions Networks**

  Demographics
  The existing minority population along NC 10 is similar to the county average, while the income level is about 75% below the county average.

  Economic
  Currently, the land surrounding NC 10 is very rural consisting of farmland and forests with some residential development. There are some businesses located near Laurel Hill. Future economic growth along NC 10 is not foreseeable due to the watershed.

Environmental

There are no known natural environmental features in this area. The human environment along NC 10 includes a church.

- **Cost Estimates**

  The cost estimate for this recommendation is based on widening the existing roadway to NCDOT standards, adding an additional four foot shoulder for bicyclists, and mitigating for possible impacts to wetlands. The cost estimate for this recommended facility is $4,251,100.

NC 18

- **Summary of Need**

  There is a need to improve NC 18 within the planning area to provide a safer bicycle facility.

- **Summary of Purpose**

  Improving the existing NC 18 should enable the roadway to accommodate automobiles and bicycles, while providing a safer facility for cyclists.

- **Roadway Conditions**

  Existing Characteristics

  NC 18 is a minor arterial on the Federal Functional Classification System. This roadway, which runs from north to south in the far northwestern portion of the planning area, links Catawba County and Cleveland County. The roadway is a two-lane undivided cross-section, approximately eighteen to twenty-four feet in width without shoulders with a speed limit of 55 mph.

  Existing Conditions

  2003 AADT volumes along NC 18 range from 2,300 vpd to 4,200 vpd. With a current practical capacity of 11,000 vpd, the existing ratio of traffic volume to practical capacity ranges from 0.2 to 0.38, meaning NC 18 is currently operating at levels satisfactory to users.

  Projected Conditions

  Little growth is anticipated in this area in the future. Traffic projected on NC 18 for the year 2030 ranges from 5,000 vpd to 5,500 vpd, which is well below the current practical capacity.

- **System Linkages**

  Transportation Plans

  NC 18 is designated as an on-road bicycle facility and an Other Major Thoroughfare on the CTP. The existing roadway will need to be widened to have a four-foot wide shoulder in order to achieve this type of facility in the future.

  Modal Interrelationships

  NC 18 connects to the NC Bike Route 6 (Piedmont Spur). NC Bike Route 6 serves as a 200-mile southern alternate to the Piedmont portion of the NC Bike Route 2 (Mountains to Sea). These two routes meet in Burke County and in Alamance County.

- **Social, Economic, and Environmental Conditions Networks**

  Demographics

  The existing minority population along NC 18 is similar to the county average, while the income level is about 75% below the county average.

  Economic

  Currently, the land surrounding NC 18 is very rural consisting of farmland and forests with some residential development. Future economic growth along NC 18 is not foreseeable due to the watershed.

  Environmental

  There are no known natural environmental features in this area. The human environment along NC 18 includes a church.

- **Cost Estimates**

  The cost estimate for this recommendation is based on widening the existing roadway to NCDOT standards, adding an additional four foot shoulder for bicyclists, and mitigating for possible impacts to wetlands. The cost estimate for this recommended facility is $3,275,300.

NC 182

- **Summary of Need**

  There is a need to improve NC 182 within the planning area to provide a safer bicycle facility.

- **Summary of Purpose**

  Improving the existing NC 182 should enable the roadway to accommodate automobiles and bicycles, while providing a safer facility for cyclists.

- **Roadway Conditions**

  Existing Characteristics

  NC 182 is a major collector on the Federal Functional Classification System. This roadway, which runs southwest to northeast through the southwestern portion of the planning area, links Johnstown and Lincolnton. The roadway is a two-lane undivided cross-section, approximately eighteen to twenty feet in width without shoulders with a speed limit of 55 mph.

  Existing Conditions

  2003 AADT volumes range from 810 vpd to 3,300 vpd. With a current practical capacity of 11,000 vpd, the existing ratio of traffic volume to practical capacity ranges from 0.07 to 0.3, meaning NC 182 is currently operating at levels satisfactory to users.

  Projected Conditions

  Little growth is anticipated in this area in the future. Traffic projected on NC 182 for the year 2030 ranges from 1,200 vpd to 6,600 vpd, which is well below the current capacity on the roadway.

- **System Linkages**
  Existing Bicycle Networks
  NC 182 is designated as part of the NC Bike Route 8 (Southern Highlands) which provides direct connectivity between Lincolnton and Johnstown. NC Bike Route 8 serves as a 120-mile route.

  Transportation Plans
  NC 182 is designated as an on-road bicycle facility and an Other Major Thoroughfare on the CTP. The existing roadway will need to be widened to a four-foot wide shoulder in order to achieve this type of facility. NC 182 or NC Bike Route 8 is included as a designated state bicycle route.

  Modal Relationship
  NC 182 connects to the NC Bike Route 6 (Piedmont Spur) near Lincolnton.
- **Social, Economic, and Environmental Conditions Networks**
  Demographics
  The existing minority population along NC 182 is similar to the county average, while the income level is about 75% below the county average.

  Economic
  The land surrounding NC 182 is very rural, consisting of farmland and forests with some residential development. The land surrounding NC 182 will not support future employment concentrations due to the watershed.

  Environmental
  There are several wetlands included in the National Wetland Inventory and a high quality water zone along NC 182. These are the only known natural environmental features in this area. The human environment along NC 182 includes several churches.
- **Cost Estimates**
  The cost estimate for this recommendation is based on widening the existing roadway to NCDOT standards, adding an additional four foot shoulder for bicyclists, and mitigating for possible impacts to wetlands. The cost estimate for this recommended facility is $51,302,700.

<u>Northbrook III School Road (SR 1107)</u>

- **Summary of Need**
  There is a need to improve Northbrook III School Road within the planning area to provide a safer bicycle facility.
- **Summary of Purpose**
  Improving the existing Northbrook III School Road should enable the roadway to accommodate automobiles and bicycles, while providing a safer facility for cyclists.
- **Roadway Conditions**
  Existing Characteristics
  Northbrook III School Road is located in the far northwestern part of the planning area. The roadway is a two-lane undivided cross-section,

approximately twenty feet in width without shoulders with a speed limit of 55 mph.

- **System Linkages**

  Existing Bicycle Networks

  Northbrook III School Road is designated as part of the NC Bike Route 6 (Piedmont Spur). NC Bike Route 6 serves as a 200-mile southern alternate to the Piedmont portion of the NC Bike Route 2 (Mountains to Sea). These two routes meet in Burke County and in Alamance County.

  Transportation Plans

  Northbrook III School Road is designated as an on-road bicycle facility and a Minor Thoroughfare on the CTP. The existing roadway will need to be widened to a two-lane undivided with four-foot wide shoulders in order to achieve this type of facility in the future. Northbrook III School Road or NC Bike Route 6 is included as a designated state bicycle route.

- **Social, Economic, and Environmental Conditions Networks**

  Demographics

  The existing minority population along Northbrook III School Road is similar to the county average, while the income level is about 75% below the county average.

  Economic

  Currently, the land surrounding Northbrook III School Road is very rural consisting of farmland and forests. Future economic growth along Northbrook III School Road is not foreseeable due to the watershed.

  Environmental

  There is a high quality water zone along Northbrook III School Road. There are no other known human and natural environmental features in the area.

- **Cost Estimates**

  The cost estimate for this recommendation is based on widening the existing roadway to NCDOT standards, adding an additional four foot shoulder for bicyclists, and mitigating for possible impacts to wetlands. The cost estimate for this recommended facility is $20,089,500.

<u>Old NC 18 (SR 1100)</u>

- **Summary of Need**

  There is a need to improve Old NC 18 within the planning area to provide a safer bicycle facility.

- **Summary of Purpose**

  Improving the existing Old NC 18 should enable the roadway to accommodate automobiles and bicycles, while providing a safer facility for cyclists.

- **Roadway Conditions**
  Existing Characteristics
  Old NC 18 is located in the far northwestern part of the planning area. The roadway is a two-lane undivided cross-section, approximately eighteen feet in width without shoulders with a speed limit of 55 mph.
- **System Linkages**
  Existing Bicycle Networks
  Old NC 18 is designated as part of the NC Bike Route 6 (Piedmont Spur) which provides direct connectivity between Lincolnton and Cat Square. NC Bike Route 6 serves as a 200-mile southern alternate to the Piedmont portion of the NC Bike Route 2 (Mountains to Sea). These two routes meet in Burke County and in Alamance County.

  Transportation Plans
  Old NC 18 is designated as an on-road bicycle facility on the CTP. The existing roadway will need to be widened to a two-lane undivided four-foot shoulders in order to achieve this type of facility in the future. Old NC 18 or NC 6-bicycle route is also included as a designated state bicycle route.
- **Social, Economic, and Environmental Conditions Networks**
  Demographics
  The existing minority population along Old NC 18 is similar to the county average, while the income level is about 75% below the county average.

  Economic
  Future economic growth along Old NC 18 is not foreseeable due to the watershed.

  Environmental
  There are no known human and natural environmental features in the area.
- **Cost Estimates**
  The cost estimate for this recommendation is based on widening the existing roadway to NCDOT standards, adding an additional four foot shoulder for bicyclists, and mitigating for possible impacts to wetlands. The cost estimate for this recommended facility is $6,616,600.

Optimist Club Road (SR 1380)

- **Summary of Need**
  There is a need to improve Optimist Club Road within the planning area to provide a safer bicycle facility.
- **Summary of Purpose**
  Improving the existing Optimist Club Road should enable the roadway to accommodate automobiles and bicycles, while providing a safer facility for cyclists and children.
- **Roadway Conditions**
  Existing Characteristics
  Optimist Club Road, which runs from east to west through the eastern portion of the planning area, provides access to NC 16 to St. James

Church Road. The speed limit along this two-lane undivided cross-section, approximately twenty feet in width is 55 mph.

Existing Conditions
2003 AADT volumes along Optimist Club Road ranged from 2,900 vpd to 3,000 vpd. With a current practical capacity of 11,000 vpd, the existing ratio of traffic volume to practical capacity ranges from 0.26 to 0.27, meaning Optimist Club Road is currently operating at levels satisfactory to users.

Projected Conditions
Traffic projected on Optimist Club Road for the year 2030 ranges from 6,800 vpd to 7,900 vpd, which is well under the current practical capacity.

- **System Linkages**

  Existing Roadway Networks
  Optimist Club Road provides access from NC 16 to St. James Church Road.

  Transportation Plans
  Optimist Club Road is designated as an on-road bicycle facility on the CTP. The existing roadway will need to be widened to a two-lane undivided roadway with four-foot shoulders in order to achieve this type of facility in the future.

  Modal Interrelationships
  Optimist Club Road connects to the proposed Fairfield Forest Road Path and the Killian Creek off-road bicycle facility.

- **Social, Economic, and Environmental Conditions Networks**

  Demographics
  The existing minority population along Optimist Club Road is the county average, while the income level is about 75% below the county average.

  Economic Data
  Currently, the land surrounding Optimist Club Road contains single family residences. Although no commercial development is proposed in this area, residential development is possible.

  Environmental
  There are several wetlands included in the National Wetland Inventory along Optimist Club Road. There are no other known natural environmental features in this area. The human environment along Optimist Club Road includes the East Lincoln County park.

- **Cost Estimates**

  The cost estimate for this recommendation is based on widening the existing roadway to NCDOT standards, adding an additional four foot shoulder for bicyclists, and mitigating for possible impacts to wetlands. The cost estimate for this recommended facility is $9,589,300.

Reepsville Road/Reeps Grove Church Road (SR 1113)

- **Summary of Need**
  There is a need to improve Reepsville Road within the planning area to provide a safer bicycle facility.
- **Summary of Purpose**
  Improving the existing Reepsville Road should enable the roadway to accommodate automobiles and bicycles, while providing a safer facility for cyclists.
- **Roadway Conditions**

  Existing Characteristics
  Reepsville Road is a minor collector on the Federal Functional Classification System. This roadway, which runs from east to west through the northwestern portion of the planning area, links Cat Square, Vale, Reepsville, and Lincolnton. The roadway is a two-lane undivided cross-section, approximately twenty feet in width without shoulders and has a speed limit of 55 mph.

  Existing Conditions
  2003 AADT volumes along Reepsville Road range from 1,100 vpd to 4,000 vpd. With a current practical capacity of 11,000 vpd, the existing ratio of traffic volume to practical capacity ranges from 0.1 to 0.36, meaning Reepsville Road is currently operating at levels satisfactory to users.

  Projected Conditions
  Little growth is anticipated in this area in the future. Traffic projected on Reepsville Road for the year 2030 ranges from 1,300 vpd to 7,600 vpd, which is well below the current practical capacity.
- **System Linkages**

  Existing Bicycle Networks
  Reepsville Road is designated as part of the NC Bike Route 6 (Piedmont Spur) which provides direct connectivity between Lincolnton and Cat Square. NC Bike Route 6 serves as a 200-mile southern alternate to the Piedmont portion of the NC Bike Route 2 (Mountains to Sea). These two routes meet in Burke County and in Alamance County.

  Transportation Plans
  Reepsville Road is designated as an on-road bicycle facility and a Minor Thoroughfare on the CTP. The existing roadway will need to be widened to a two-lane undivided roadway with four-foot shoulders in order to achieve this type of facility in the future. Reepsville Road or NC Bike Route 6 is included as a designated state bicycle route.
- **Social, Economic, and Environmental Conditions Networks**

  Demographics
  The existing minority population along Reepsville Road is similar to the county average, while the income level along a section of Reepsville Road from Alf Hoover Road (SR 1200) to Cat Square is 75% below the county average.

Economic
Currently, the land surrounding Reepsville Road is very rural consisting of farmland and forests. Although no commercial development is proposed in this area, residential development is possible.

Environmental
There are several wetlands included in the National Wetland Inventory and a high quality water zone along Reepsville Road. These are the only known natural environmental features in this area. The human environment along Reepsville Road includes several churches and an elementary school.

- **Cost Estimates**
  The cost estimate for this recommendation is based on widening the existing roadway to NCDOT standards, adding an additional four foot shoulder for bicyclists, and mitigating for possible impacts to wetlands. The cost estimate for this recommended facility is $57,535,700.

Webbs Road (SR 1379)

- **Summary of Need**
  There is a need to improve Webbs Road within the planning area to provide a safer bicycle facility and provide access to an existing public park, swimming pool, and a boat ramp.
- **Summary of Purpose**
  Improving the existing Webbs Road should enable the roadway to accommodate automobiles and bicycles, while providing a safer facility for cyclists.
- **Roadway Conditions**
  Existing Characteristics
  Webbs Road, which runs from east to west through the eastern portion of the planning area, links NC 16 to the Lake Norman Bicycle Route. The roadway is a two-lane undivided cross-section, approximately twenty feet in width.
- **System Linkages**
  Modal Interrelationships
  Webbs Road is designated as an on-road bicycle facility on the CTP. This facility will connect Webbs Road to NC 16 and the proposed off-road bicycle facility that leads to the East Lincoln Recreational Center.
- **Social, Economic, and Environmental Conditions Networks**
  Demographics
  The existing minority population and the income level along Webbs Road is similar to the county average.

  Economic Data
  Currently, the land surrounding Webbs Road is rural consisting of forests with little residential development. However, though no commercial development is proposed in this area, residential development is possible.

Environmental
There are no known human and natural environmental features along Webbs Road.

- **Cost Estimates**
  The cost estimate for this recommendation is based on adding an additional four foot shoulder for bicyclists. The cost estimate for this recommended facility is $1,118,600.

Webbs Road Path

- **Summary of Need**
  There is a need to connect neighborhoods and facilitate non-vehicular travel in the area.
- **Summary of Purpose**
  The purpose is to provide connectivity enabling bicycling and walking within this area to the East Lincoln Park.
- **System Linkages**
  Transportation Plans
  Webbs Road Path is designated as an off-road bicycle facility on the CTP and is included as a recommendation of the Lincoln County Comprehensive Land Use Plan.

  Modal Interrelationships
  Webbs Road Path will connect to the proposed Lake Norman Bicycle Route, the proposed Webbs Road on-road bicycle facility, the proposed Fairfield Forest Road Path, and the proposed Optimist Club Road on-road bicycle facility.
- **Social, Economic, and Environmental Conditions Networks**
  Demographics
  The existing minority population and the income level along Webbs Road Path is similar to the county average.

  Economic
  There are several undeveloped land parcels along Webbs Road Path. Although no commercial development is proposed in this area, residential development and a public park are possible.

  Environmental
  There are several wetlands included in the National Wetland Inventory along Webbs Road Path. This is the only known natural environmental feature in this area. The human environment along Webbs Road Path includes a public park/ community center on Optimist Club Road (SR 1380).
- **Cost Estimates**
  The cost estimate for this recommendation is based on a multi-use path, ROW costs, and mitigating for possible impacts to wetlands. The cost estimate for this recommended facility is $1,447,200.

III. Population, Land Use, and Roadway System

In order to fulfill the objectives of an adequate long range transportation plan, reliable forecasts of future travel patterns must be achieved. Such forecasts depend on careful analysis of the following items: historic and potential population changes, significant economic trends, character and intensity of land development; and the ability of the existing transportation system to meet existing and future travel demand. Secondary items that influence forecasts include the effects of legal controls such as zoning ordinances and subdivision regulations, availability of public utilities and transportation facilities, and topographic and other physical features of the urban area.

Population

Since the volume of traffic on a roadway is related to the size and distribution of the population that it serves, population data is used to aid the development of the transportation plan. The base year population was based on the 2000 Census. Future population estimates typically rely on the observance of past population trends and counts. The projected population within the planning area is based on the regional control totals used in the development of the Metrolina Regional Model, which were adopted by Lincoln County and Lake Norman RPO in September 2004.

Land Use

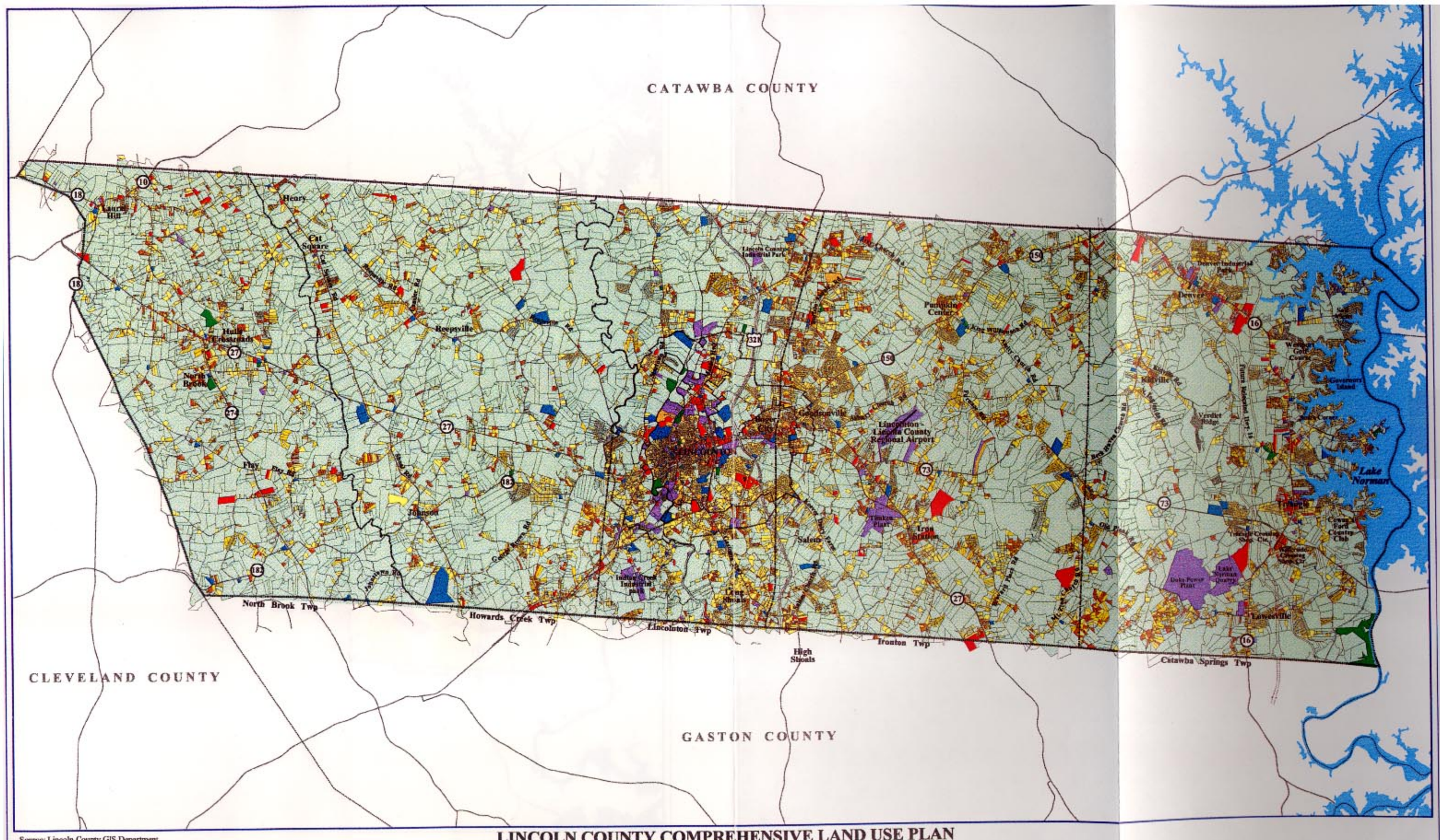
Land use refers to the physical patterns of activities and functions within an area. The transportation demand along a particular road or for multi-modal facilities is related to the land uses adjacent to that facility and the intensity of land use affects the traffic patterns for multi-modal facilities. For example, a shopping center generates larger traffic volumes than a residential area. The spatial distribution of varying land uses is the predominant determinant of when, where, and why congestion occurs. The attraction between different land uses and their association with travel varies with the size, type, intensity, and spatial separation of each land use. Even commercial and residential traffic generation patterns have different peaks based on the time of day and the day of the week. When dealing with transportation planning, land use is divided into the following classifications:

- Residential – All land is devoted to the housing of people, with the exception of hotels and motels.

- Commercial – All land is devoted to retail trade including consumer and business services and their offices; this may be further stratified into retail and special retail classifications. Special retail would include high-traffic establishments, such as fast-food restaurants and service stations; all other commercial establishments would be considered retail.

- Industrial – All land is devoted to the manufacturing, storage, warehousing, and transportation of products.
- Public – All land is devoted to social, religious, educational, cultural, and political activities; this would include the office and service employment establishments.

Figure 3 shows the 2000 existing land use map for Lincoln County. **Figure 4 A, B, and C** shows the future 2030 Comprehensive Land Use Plan for Lincoln County. The anticipated land use development for the planning area is predominantly residential, industrial, and commercial. Noticeable residential growth is expected in the planning area with the highest growth in the eastern portion of the planning area.



Source: Lincoln County GIS Department

LINCOLN COUNTY COMPREHENSIVE LAND USE PLAN

NORTH CAROLINA

EXISTING LAND USE MAP

FIGURE - 3

N

1 0 1 2 3 Miles

Major Road | Road | City Limit | ETJ Line | Township Boundary | County Line

Land Use

Apartment | Manufactured Home | Mobile Home | Single Family Residential | Commercial | Industrial | Institutional | Park | Agriculture/Forest Land/Pasture

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LandDesign, Inc.

June 2000

LINCOLN COUNTY COMPREHENSIVE LAND USE PLAN

NORTH CAROLINA

FIGURE - 4A

CATAWBA COUNTY

CLEVELAND COUNTY

GASTON COUNTY

Laurel Hill

Henry

Cat Square

Vale

Reepsville

Hulls Crossroads

West Lincoln High School

West Lincoln Middle School

Flay

Johnson

Crouse

Legend

- City Limit
- ETJ Line
- Major Road
- Road
- Proposed Interchange
- Proposed Grade Separation
- Natural Heritage Site
- Existing Shopping Center
- Optimist & Youth Organization
- Surface Water Intake
- Existing Park Location
- County Line
- Railroad
- Proposed Major Thoroughfare
- Existing Interchange
- Existing Grade Separation
- Existing Park
- Historic Site
- Civic and Cultural Center
- Existing School Site
- Waste Water Treatment Plant
- Existing Industrial Park or Large Industrial User
- Top 20 Industrial Manufacture Employers
- Undeveloped Land Greater than 100 AC Under Single Ownership
- Significant Agricultural/Forest Land.
- Area within 1/2 Mile of Sewer Line
- Area within 1/2 Mile of Water Line
- Existing Greenway Trail
- Potential Greenway Trail
- Potential Greenway System
- Potential Park Site (100 AC+)
- Lincolnton Development Concentration
- Rural Community Center
- Neighborhood Center
- Residential Community
- Commercial and Employment Center
- WS-II & WS-III Watershed - Not Suitable for Employment Concentration
- Proposed Roadway for Improvement
- Proposed Road
- Pedestrian and Bike Path Along Relocated Hwy 16
- Proposed Sewer/Water System Expansion
- Land to be Reserved for Thoroughfare R.O.W

COMPOSITE PLAN WEST LINCOLN COUNTY

Source: Lincoln County GIS Department

N

2000 0 2000 4000 6000 8000 Feet

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LandDesign, Inc.

CATAWBA COUNTY

LINCOLN COUNTY COMPREHENSIVE LAND USE PLAN

NORTH CAROLINA

FIGURE - 4B

Legend

- City Limit
- ETJ Line
- Major Road
- Road
- Proposed Interchange
- Proposed Grade Separation
- Natural Heritage Site
- Existing Shopping Center
- Optimist & Youth Organization
- Surface Water Intake
- Existing Park Location
- Existing Industrial Park or Large Industrial User
- Top 20 Industrial Manufacture Employers
- Undeveloped Land Greater than 100 AC Under Single Ownership
- Significant Agricultural/Forest Land.
- Area within 1/2 Mile of Sewer Line
- Area within 1/2 Mile of Water Line
- Existing Greenway Trail
- Potential Greenway Trail
- Potential Greenway System
- Potential Park Site (100 AC +)
- Lincolnton Development Concentration
- Rural Community Center
- Neighborhood Center
- Residential Community
- Commercial and Employment Center
- WS-II & WS-III Watershed - Not Suitable for Employment Concentration
- Proposed Roadway for Improvement
- Proposed Road
- Pedestrian and Bike Path Along Relocated Hwy 16
- Proposed Sewer/Water System Expansion
- Land to be Reserved for Thoroughfare R.O.W
- County Line
- Railroad
- Proposed Major Thoroughfare
- Existing Interchange
- Existing Grade Separation
- Existing Park
- Historic Site
- Civic and Cultural Center
- Existing School Site
- Waste Water Treatment Plant

Reepsville
Pumpkin Center
Lincolnton
Iron Station
Crouse
Long Shoals
Salem
Lincoln County Industrial Park
City Park
Lincolnton-Lincoln County Airport
Indian Creek Industrial Park

GASTON COUNTY

COMPOSITE PLAN
CENTRAL LINCOLN COUNTY

Source: Lincoln County GIS Department

N

2000 0 2000 4000 6000 8000 Feet

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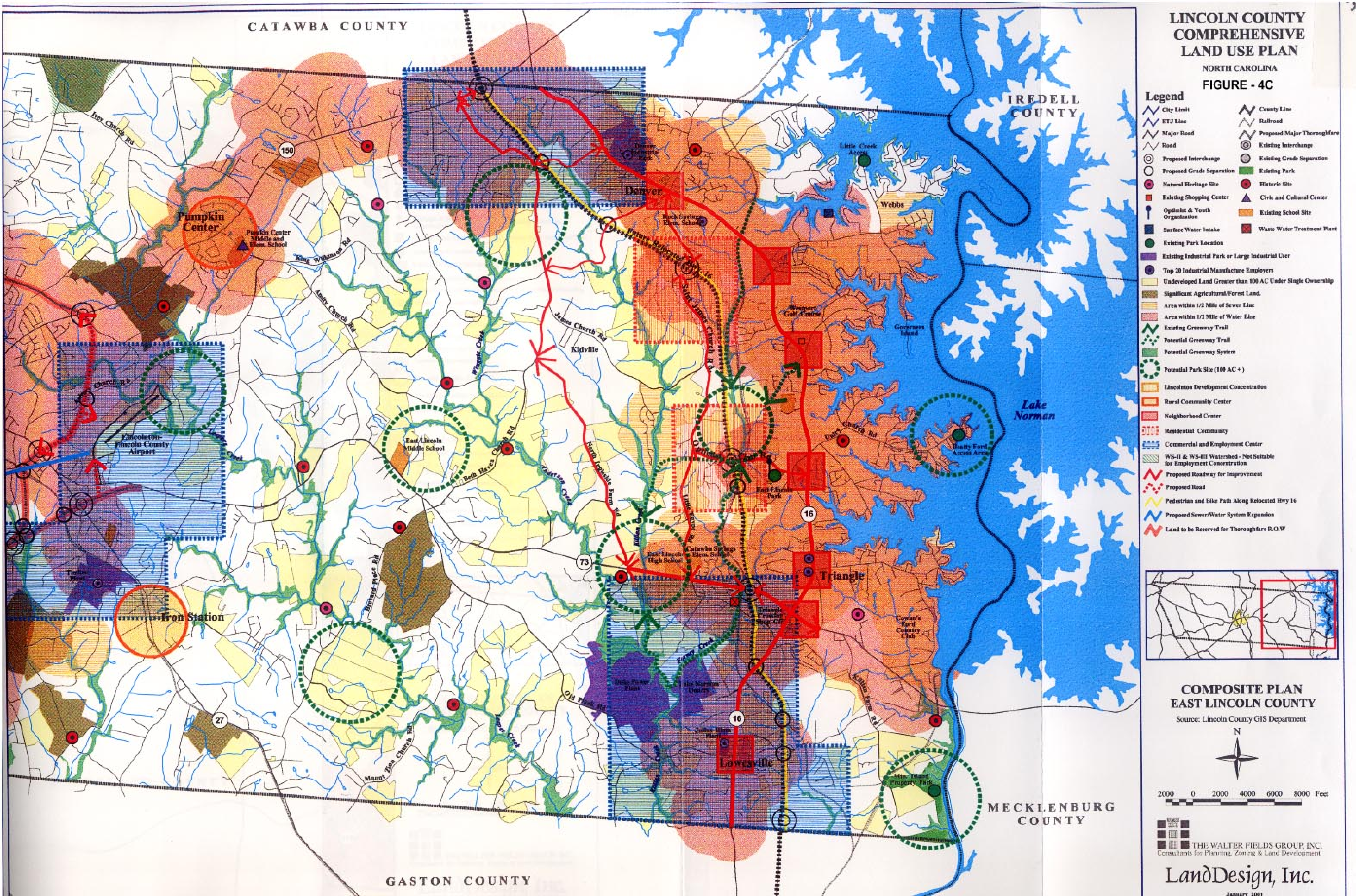
LandDesign, Inc.

December 2000


LINCOLN COUNTY COMPREHENSIVE LAND USE PLAN
NORTH CAROLINA
FIGURE - 4C
Legend
City Limit
County Line
ETJ Line
Railroad
Major Road
Proposed Major Thoroughfare
Road
Existing Interchange
Proposed Interchange
Existing Grade Separation
Proposed Grade Separation
Existing Park
Natural Heritage Site
Historic Site
Existing Shopping Center
Civic and Cultural Center
Optimist & Youth Organization
Existing School Site
Surface Water Intake
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Area within 1/2 Mile of Sewer Line
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Potential Greenway Trail
Potential Greenway System
Potential Park Site (100 AC +)
Lincolnton Development Concentration
Rural Community Center
Neighborhood Center
Residential Community
Commercial and Employment Center
WS-II & WS-III Watershed - Not Suitable for Employment Concentration
Proposed Roadway for Improvement
Proposed Road
Pedestrian and Bike Path Along Relocated Hwy 16
Proposed Sewer/Water System Expansion
Land to be Reserved for Thoroughfare R.O.W
CATAWBA COUNTY
IREDELL COUNTY
MECKLENBURG COUNTY
GASTON COUNTY
Lake Norman
Denver
Pumpkin Center
Iron Station
Triangle
Lowesville
Kidville
Webbs
Governors Island
Lincolnton-Lincoln County Airport
East Lincoln Middle School
East Lincoln High School
East Lincoln Park
Beatty Ford Access Area
Little Creek Access
Ivey Church Rd
King Wilkinson Rd
Amity Church Rd
James Church Rd
North Ingleside Farm Rd
Beth Haven Church Rd
Unity Church Rd
Old Plank Rd
Mount Zion Church Rd
Brevard Place Rd
Killian Farm Rd
150
73
16
27
COMPOSITE PLAN
EAST LINCOLN COUNTY
Source: Lincoln County GIS Department
N
2000 0 2000 4000 6000 8000 Feet
THE WALTER FIELDS GROUP, INC.
Consultants for Planning, Zoning & Land Development
LandDesign, Inc.
January 2001

Roadway System

An important stage in the development of a CTP is the analysis of the existing roadway system and its ability to serve the area's travel desires. Emphasis is placed not only on detecting the existing deficiencies, but also on understanding the causes of these deficiencies. Travel deficiencies may be localized, resulting from problems with inadequate pavement width, intersection geometry, or intersection controls. Travel deficiencies may also result from system problems, such as the need to construct missing travel links, bypass routes, loop facilities, or additional radial routes.

An analysis of the roadway system looks at both current and future travel patterns and identifies existing and anticipated deficiencies. This is usually accomplished through a traffic collision analysis, roadway capacity deficiency analysis, and a system deficiency analysis. This information is used to analyze factors that will impact the future system, in addition to population growth, economic development potential, and land use trends.

Traffic Crash Analysis

Traffic crashes are often used as an indicator for locating congestion problems. While often the result of drivers or vehicle performance, crashes may also be a result of the physical characteristics of the roadway. Roadway conditions and obstructions, traffic conditions, and weather may all lead to a crash. While some crashes are the fault of the driver, others may be prevented with physical design or traffic control changes such as the installation of stop signs or traffic signals.

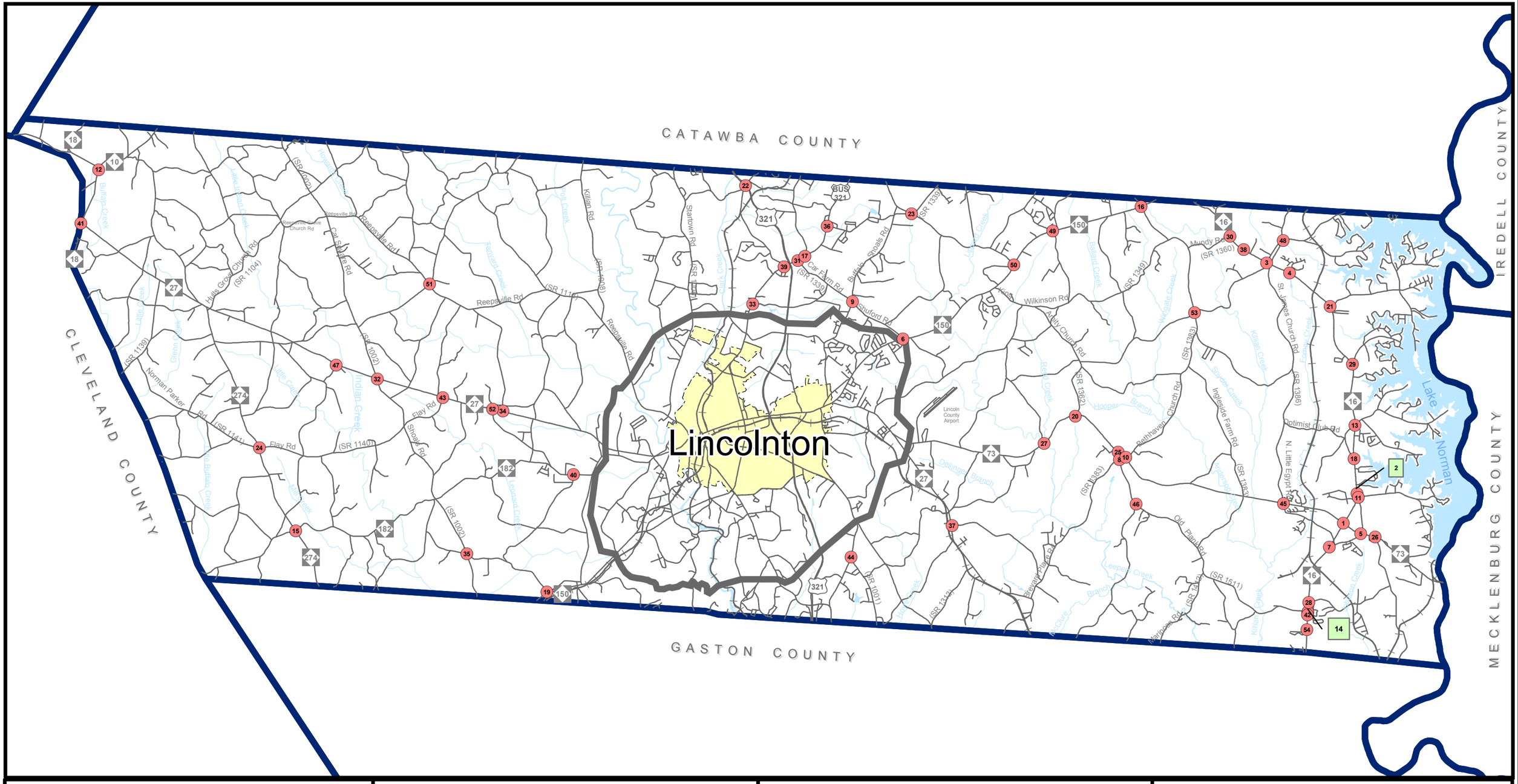
Crash data for the period from January 2001 to January 2004 was studied as part of the development for this report. The collision analysis considered both collision frequency and severity. Crash frequency is the total number of reported collisions while crash severity is the crash rate based upon injuries and property damage incurred. These two factors helped to determine the worst intersections within the planning area that are summarized in **Table 1** and shown in **Figure 5**.

The NCDOT is actively involved with investigating and improving many of these locations. To request a more detailed analysis for any of the locations listed in **Table 1**, or other intersections of concern, the planning area should contact the Division Traffic Engineer. Contact information for the Division Traffic Engineer is included in **Appendix A**.

Table 1 Crash Locations			
Map Index	**Intersection**	**Average Severity**	**Total Collisions**
1	NC 16 & NC 73	3.69	22
2	NC 16 & Pilot Knob Road (SR 1394)	2.42	26
3*	NC 16 & Campground Road (SR 1373)	2.54	24
4	NC 16 & Forest Hills Drive (SR 1771)	4.17	14
5	NC 73 & Pilot Knob Road (SR 1394)	6.94	14
6	NC 150 & Shuford Road (SR 1339)	10.36	16
7	NC 16 & Hagers Ferry Road (SR 1393)	3.85	13
8	Brevard Place Road (SR 1360) & Old Plank Road (SR 1511)	15.48	12
9	Buffalo Shoals Road (SR 1003) & Shuford Road (SR 1339)	3.96	15
10	NC 73 & Beth Haven Church Road (SR 1360)	3.47	15
11	Hagers Ferry Road (SR 1393) & Pilot Knob Road (SR 1394)	3.64	14
12	NC 10 & NC 18	4.42	13
13	NC 16 & Unity Church Road (SR 1439)	2.64	9
14	NC 16 & Old Plank Road (SR 1511)	9.11	13
15	NC 182 & NC 274	14.18	8
16	NC 150 & Henry Dellinger Road (SR 1371)	3.47	9
17	Maiden Highway (US 321B) & Finger Mill Road (SR 1276)	3.47	6
18	NC 16 & Triangle Circle	4.70	10
19	NC 150 & Crouse Road (SR 1169)	2.06	7
20	NC 73 & Amity Church Road (SR 1362)	23.65	8
21	NC 16 & Webbs Road (SR 1379)	1.92	8
22	US 321B & Summerow Road (SR 1279)	5.93	6
23	Buffalo Shoals Road (SR 1003) & Ivey Church Road (SR 1343)	4.70	8
24	NC 274 & Flay Road (SR 1140)	6.29	7
25	NC 73 & Old Plank Road (SR 1511)	2.06	7
26	NC 73 & Killian Farm Road (SR 1396)	3.28	13
27	NC 73 & Furnace Road (SR 1355)	5.23	7
28	NC 16 & Sifford Road (SR 1397)	5.93	6
29	NC 16 & Fairfield Forest Road (SR 1389)	5.93	9
30	NC 16 & Mundy Road (SR 1349)	5.11	9
31	US 321 & Car Farm Road (SR 1339)	13.27	11
32	NC 27 & Shoal Road (SR 1002)	3.47	6
33	US 321B & Horseshoe Lake Road (SR 1338)	22.08	5
34	NC 27 & Alf Hoover Road (SR 1200)	18.57	6
35	Shoal Road (SR 1002) & Crouse Road (SR 1169)	6.92	5
36	Maiden Highway (US 321B) & Springs East Road (SR 1342)	34.28	5
37	NC 27 & Orchard Road (SR 1358)	4.70	6
38	NC 16 & Denver Industrial Park Road (SR 1758)	2.23	6
39	US 321 & Summerow Road (SR 1279)	4.70	6
40	NC 182 & George Brown Road (SR 1180)	19.12	5

Table 1 Crash Locations (Cont'd)			
Map Index	**Intersection**	**Average Severity**	**Total Collisions**
41	NC 18 & NC 27	15.00	7
42	NC 16 & Lowesville Square (SR 1655)	5.44	5
43	NC 27 & Flay Road (SR 1140)	4.70	6
44	Philadelphia Church Road (SR 1001) & Salem Church Road (SR 1307)	3.96	5
45	NC 73 & Little Egypt Road (SR 1386)	3.11	7
46	Mount Zion Church Road (SR 1404) & Old Plank Road (SR 1511)	3.11	7
47	NC 27 & Dewey Boyles Road (SR 1147)	1.00	5
48	Campground Road (SR 1373) & Burris Road (SR 1374)	2.06	7
49	NC 150 & Lee Lawing Road (SR 1366)	2.48	5
50	NC 150 & Ivey Church Road (SR 1343)	2.48	5
51	Reepsville Road (SR 1113) & Cansler Road (SR 1197)	6.92	5
52	NC 27 & Harmon Road (SR 1187)	6.92	5
53	Beth Haven Church Road (SR 1360) & Wingate Hill Road (SR 1373)	6.29	7
54	NC 16 & McIntosh Road (SR 1450)	19.12	5

Note: * After the above data was collected, signals were installed at NC 16 at Campground Road (map index #3) and at NC 16 and Triangle Circle (map index #18).



PREPARED BY THE
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION PLANNING BRANCH

IN COOPERATION WITH THE
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

BASE MAP DATE: AUGUST 2004

N
W E
S

0 1 2 4 Miles

LEGEND

● HIGH CRASH LOCATIONS
▨ MUNICIPAL BOUNDARY
▭ URBAN THOROUGHFARE PLANNING AREA

FIGURE 5

CRASH LOCATIONS for 2001 to 2004 Lincoln County

NORTH CAROLINA

Roadway Capacity Deficiencies

Roadway capacity deficiencies occur wherever the travel demand volume of a roadway is close to or more than the capacity of that roadway. Travel demand volume is the total number of vehicles that wish to use a roadway on a daily basis. The existing travel demand volumes for the planning area are based upon traffic count data taken annually by the NCDOT Traffic Survey Unit and are shown in **Figure 6** for the year 2003. The projected 2030 travel demand volumes, which are based upon historic and anticipated population, economic growth patterns, and land use trends, are shown in **Figure 7**.

Capacity is the maximum number of vehicles that can pass over a given section of roadway during a given time period under prevailing roadway and traffic conditions while still maintaining a service level that is acceptable to drivers. Many factors contribute to the capacity of a roadway, including:

- Geometry of the road, including number of lanes, horizontal and vertical alignment, and proximity of perceived obstructions to safe travel along the road;
- Typical users of the road, such as commuters, recreational travelers, and truck traffic;
- Access control, including streets and driveways, or lack thereof, along the roadway;
- Development of the road, including residential, commercial, and industrial developments;
- Number of traffic signals along the route;
- Peaking characteristics of the traffic on the road;
- Characteristics of side-roads feeding into the road; and
- Directional split of traffic or the percentages of vehicles traveling in each direction along a road at any given time.

2003 Traffic Capacity Analysis

The comparison of the 2003 travel demand volumes for the major roadways in the planning area to the current practical capacities for these roadways identified several existing deficiencies for Lincoln County planning area. These existing roadway deficiencies are summarized in **Table 2**.

2030 Traffic Capacity Analysis

The capacity deficiency analysis for the 2030 design year is based upon the “no build” alternative. This analysis examined the existing street system and determined that numerous roadways within the planning area will exceed practical capacity by the design year. **Table 3** presents the capacity deficiencies determined for the design year based upon this analysis. Complete recommendations for these facilities are included in **Chapter 2** of this report.

Table 2 2003 Capacity Deficiencies	
Roadway/Section	**Deficiency**
NC 16	
From Catawba County Line to Leonard Access Road (SR 1749)	Over capacity
From Leonard Access Road (SR 1749) to Campground Road (SR 1373)	Approaching capacity
From Campground Road (SR 1373) to St. James Church Road (SR 1386)	Over capacity
From St. James Church Road (SR 1386) to Webbs Road (SR 1379)	Over capacity
From Webbs Road to Fairfield Forest Road (SR 1389)	Approaching capacity
From Fairfield Forest Road (SR 1389) to Unity Church Road (SR 1439)	Over capacity
From Unity Church Road (SR 1439) to Pilot Knob Road (SR 1394)	Over capacity
From Pilot Knob Road (SR 1394) to NC 73	Over capacity
From NC 73 to Old Plank Road (SR 1511)	Over capacity
From Old Plank Road (SR 1511) to Gaston County Line	Over capacity
NC 73	
From Amity Church Road (SR 1362) to Beth Haven Church Road (SR 1383)	Approaching capacity
From Pilot Knob Road (SR 1394) to Mecklenburg County Line	Over capacity
NC 150	
From St. Mark's Church Road (SR 1172) to Boy Scout Road (SR 1176)	Approaching capacity

Table 3 2030 Capacity Deficiencies	
Roadway/Section	**Deficiency**
NC 16	
From Catawba County Line to Campground Road (SR 1373)	Over capacity
From Campground Road (SR 1373) to St. James Church Road (SR 1386)	Over capacity
From St. James Church Road (SR 1386) to Fairfield Forest Road (SR 1389)	Over capacity
From Fairfield Forest Road (SR 1389) to Unity Church Road (SR 1439)	Over capacity
From Unity Church Road (SR 1439) to Pilot Knob Road (SR 1394)	Over capacity
From Pilot Knob Road (SR 1394) to NC 73	Over capacity
From NC 73 to Old Plank Road (SR 1511)	Over capacity
From Old Plank Road (SR 1511) to Gaston County Line	Over capacity
Campground Road (SR 1373)	
From NC 16 to Catawba County Line	Over capacity
Old Plank Road (SR 1511)	
From Mariposa Road (SR 1412) to NC 16	Over capacity
NC 27	
From Flay Road (SR 1140) to Zion Hill Church Road (SR 1185)	Approaching capacity
From Zion Hill Church Road (SR 1185) to Lincolnton Planning Boundary	Over capacity
From NC 73 to McMillian Heights Road (SR 1672)	Over capacity
From McMillian Heights Road (SR 1672) to Devine Road (SR 1312)	Approaching capacity
From Devine Road (SR 1312) to Gaston County Line	Approaching capacity

Table 3 2030 Capacity Deficiencies (Cont'd)	
Roadway/Section	**Deficiency**
NC 73	
From NC 27 to Amity Church Road (SR 1362)	Over capacity
From Amity Church Road (SR 1362) to Beth Haven Church Road (SR 1360)	Over capacity
From Beth Haven Church Road (SR 1360) to Ingleside Farm Road (SR 1383)	Over capacity
From Ingleside Farm Road (SR 1383) to NC 16	Over capacity
From NC 16 to Mecklenburg County Line	Over capacity
NC 150	
From Catawba County Line to King Wilkinson Road (SR 1349)	Over capacity
From King Wilkinson Road (SR 1349) to Lincolnton Planning Boundary	Over capacity
From Lincolnton Planning Boundary to St. Mark's Church Road (SR 1172)	Over capacity
From St. Mark's Church Road (SR 1172) to County Line	Approaching capacity
US 321 Business/Maiden Highway	
From Catawba County Line to Finger Mill Road (SR 1276)	Approaching capacity
From Finger Mill Road (SR 1276) to US 321 interchange	Approaching capacity
From US 321 interchange to Lincolnton Planning Boundary	Approaching capacity
From Brady Hoffman Road (SR 1562) to US 321interchange	Over capacity

CATAWBA COUNTY

IREDELL COUNTY

CLEVELAND COUNTY

MECKLENBURG COUNTY

GASTON COUNTY

Lincolnton

Lincoln County Airport

Lake Norman

2300 11000
1700 11000
2600 11000
3500 11000
2600 11000
850 11000
14400 11000
7000 11000
1100 11000
550 11000
700 11000
7500 11000
640 11000
7300 11000
15000 13900
1500 11000
2600 11000
1400 11000
3900 11000
1300 11000
430 11000
6400 11000
2400 11000
15000 13900
7500 11000
10000 11000
1300 11000
2800 11000
760 11000
2200 11000
7000 11000
1400 11000
2000 11000
20000 13900
860 11000
7300 11000
2900 11000
5700 11000
2800 11000
5300 11000
1400 11000
900 11000
14000 13900
16000 11000
2600 11000
6900 11000
8900 11000
5700 11000
3000 11000
780 11000
5800 11000
5100 11000
17000 13900

LEGEND

EXISTING VOLUMES
CAPACITY
• AADT LOCATIONS (see report)
MUNICIPAL BOUNDARY
URBAN THOROUGHFARE PLANNING AREA

VOLUME TO CAPACITY RATIO
0 to 0.85
0.85 to 1.0
1.0 to 3.5

N W E S

0 1 2 4 Miles

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U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

BASE MAP DATE: MARCH 2005

FIGURE 6

2003 AADT COUNTS

Lincoln County

NORTH CAROLINA

CATAWBA COUNTY

IREDELL COUNTY

CLEVELAND COUNTY

MECKLENBURG COUNTY

GASTON COUNTY

Lincolnton

Lincoln County Airport

Lake Norman

5000 11000
2200 11000
3400 11000
6000 11000
5200 11000
1500 11000
24600 11000
11900 11000
700 11000
1300 11000
900 11000
1100 11000
10200 11000
12800 11000
25500 13900
1800 11000
3400 11000
1800 11000
6700 11000
2500 11000
600 11000
10800 11040
4000 11000
26200 13900
13100 11000
2200 11000
3700 11000
1000 11000
4400 11000
17800 11000
13500 11000
2400 11000
3400 11040
38200 13900
1100 11000
7300 11040
6800 11000
11000 11000
4800 11000
7700 11000
2400 11000
1500 11000
27400 13900
33000 11000
3600 11000
9700 11000
12000 11000
12400 11000
5100 11000
1300 11000
10500 11000
12000 11000
32900 13900

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BASE MAP DATE: MARCH 2005

LEGEND

EXISTING VOLUMES
CAPACITY

AADT LOCATIONS (see report)

MUNICIPAL BOUNDARY

URBAN THOROUGHFARE PLANNING AREA

VOLUME TO CAPACITY RATIO

0 to 0.85

0.85 to 1.0

1.0 to 3.5

N W E S

0 1 2 4 Miles

FIGURE 7

2030 AADT PROJECTIONS

Lincoln County

NORTH CAROLINA

Bridge Conditions

Bridges are an important element of a highway system. Any bridge deficiency will affect the efficiency of the entire transportation system. In addition, bridges present the greatest opportunity of all potential highway failures for disruption of community welfare and loss of life. Therefore, bridges must be constructed to the same, or higher, design standards as the system of which they are a part and must be inspected regularly to ensure the safety of the traveling public.

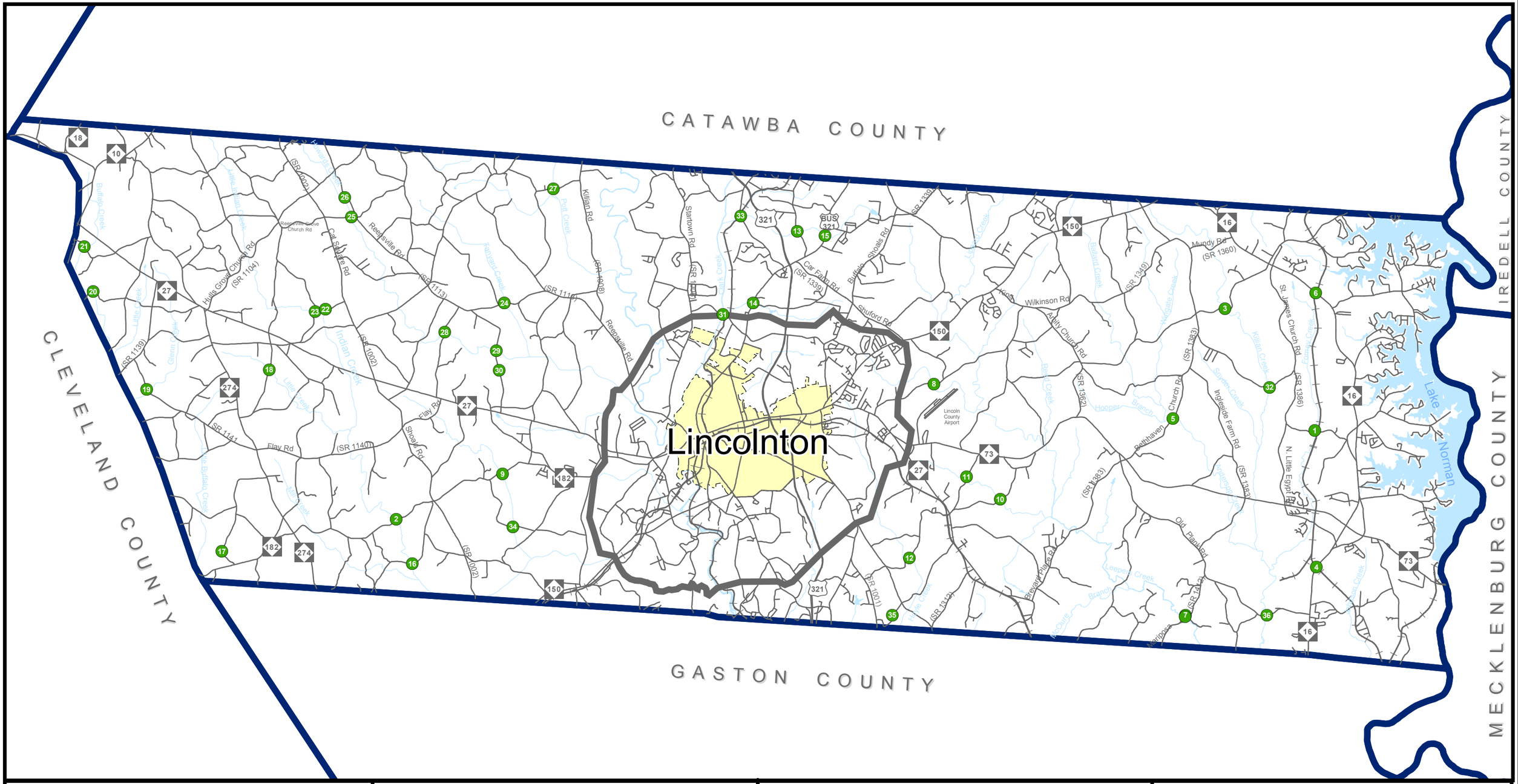
The NCDOT Bridge Maintenance Unit inspects all bridges in North Carolina at least once every two years. A sufficiency rating for each bridge is calculated and establishes the eligibility and priority for replacement. Bridges having the highest priority are replaced as Federal and State funds become available.

A bridge is considered deficient if it is either structurally deficient or functionally obsolete. A bridge at least ten years old is considered structurally deficient if it is in relatively poor condition or has insufficient load-carry capacity, due to either the original design or to deterioration. The bridge is considered to be functionally obsolete if it is narrow, has inadequate under-clearances, has insufficient load-carrying capacity, is poorly aligned with the roadway, and can no longer adequately serve existing traffic. A bridge must be classified as deficient in order to qualify for Federal replacement funds. In addition, the bridge must have a certain sufficiency rating to qualify for these funds. To qualify for replacement, the sufficiency rating must be less than 50%; for rehabilitation, the sufficiency rating must be less than 80%. Deficient bridges within the planning area are given in **Table 4**; the location of these bridges is shown in **Figure 8**.

Table 4 Deficient Bridges

Map Index	Number	Route	Across	Structurally Deficient	Functionally Obsolete
1	540005	Optimist Club Road (SR 1380)	Forney Creek	Yes	Yes
2	540007	NC 182	Indian Creek	Yes	No
3	540008	Denver Road (SR 1373)	Killian Creek	No	Yes
4	540011	NC 16	P&N Railroad	No	Yes
5	540014	Beth Haven Church Road (SR 1360)	Anderson's Creek	No	Yes
6	540021	NC 16	P&N Railroad	No	Yes
7	540022	SR 1734 (CLOSED)	Leepers Creek	Yes	Yes
8	540025	Asbury Church Road (SR 1354)	Lick Run Creek	No	Yes
9	540029	NC 182	Leonard Fork Creek	Yes	No
10	540033	Randleman Road (SR 1357)	Dellinger Creek	No	Yes
11	540034	Will Schronce Road (SR 1314)	Dellinger Creek	No	Yes
12	540037	Will Schronce Road (SR 1314)	Hoyle Creek	No	Yes
13	540047	Finger Mill Road (SR 1276)	Fork of Clarks Creek	No	Yes
14	540048	US 321 BUS	Carpentars Creek (Horseshoe Lake)	No	Yes
15	540051	US 321 BUS	Lockards Creek	No	Yes

Table 4 Deficient Bridges (Cont'd)					
Map Index	**Number**	**Route**	**Across**	**Structurally Deficient**	**Functionally Obsolete**
16	540071	Johnstown Road (SR 1168)	Indian Creek	Yes	No
17	540087	Baxter Road (SR 1152)	Fork Little Buffalo Creek	No	Yes
18	540094	Houser Farm Road (SR 1127)	Creek	No	Yes
19	540096	Norman Parker Road (SR 1141)	Creek	Yes	No
20	540099	King Road (SR 1134)	Buffalo Creek	No	Yes
21	540100	Hebron Church Road (SR 1115)	Buffalo Creek	No	Yes
22	540115	Beam Road (SR 1129)	Indian Creek	No	Yes
23	540116	Beam Road (SR 1129)	Indian Creek	No	Yes
24	540121	Reepsville Road (SR 1113)	Prong Howards Creek	Yes	Yes
25	540124	Reepsville Road (SR 1113)	Howards Creek	Yes	No
26	540127	Trinity Church Road (SR 1199)	Howards Creek	No	Yes
27	540133	Hoover Road (SR 1217)	Pott's Creek	Yes	No
28	540142	Wise Road (SR 1193)	Howards Creek	Yes	Yes
29	540144	Alf Hoover Road (SR 1200)	Howards Creek	Yes	Yes
30	540145	Alf Hoover Road (SR 1200)	Howards Creek	No	Yes
31	540146	Bethel Church Road (SR 1282)	Clark Creek	No	Yes
32	540164	Kidville Road (SR 1381)	Killian Creek	Yes	No
33	540226	Summerow Road (SR 1279)	Creek	Yes	Yes
34	540240	Leonards Fork Church Road (SR 1179)	Leonard Fork Creek	No	Yes
35	540246	Cemetery Road (SR 1309)	Creek	No	Yes
36	540248	Old Plank Road (SR 1511)	Killian Creek	No	Yes
37	540263	Mariposa Road (SR 1412)	Leepers Creek	No	Yes



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BASE MAP DATE: AUGUST 2004

LEGEND

▭ MUNICIPAL BOUNDARY

▭ URBAN THOROUGHFARE PLANNING AREA

● STRUCTURALLY DEFICIENT OR FUNCTIONALLY OBSOLETE BRIDGES

FIGURE 8

DEFICIENT BRIDGES

Lincoln County

NORTH CAROLINA

IV. Environmental Screening

In recent years, the human and natural environmental considerations associated with transportation construction have come to the forefront of the planning process. Section 102 of the National Environmental Policy Act (NEPA) requires the completion of an Environmental Impact Statement (EIS) for projects that have a significant impact on the environment. The EIS includes impacts on wetlands, wildlife, water quality, historic properties, and public lands. While this report does not cover the environmental concerns in as much as detail an EIS would, consideration for many of these factors were incorporated into the development of the CTP and related recommended improvements. Environmental features found in the planning area are shown in **Figure 9**. The environmental data used in the evaluation of the CTP was obtained in 2004 from the NCDOT Geographic Information and Analysis (CGIA) and reflects the most current data available at that time. Prior to implementing any transportation projects, further environmental analysis is necessary.

Wetlands

Wetlands are those lands where saturation with water is the dominant factor in determining the nature of soil development and the types of plant and animal communities living in the soil and on its surface. Wetlands are crucial ecosystems in our environment. They help regulate and maintain the hydrology of our rivers, lakes, and streams by storing and slowly releasing floodwaters. Wetlands help maintain the quality of water by storing nutrients, reducing sediment loads, and reducing erosion. They are also critical to fish and wildlife populations by providing an important habitat for approximately one-third of the plant and animal species that are federally listed as threatened or endangered. The National Wetland Inventory showed several wetlands throughout the planning area.

Threatened and Endangered Species

The Threatened and Endangered Species Act of 1973 allows the U. S. Fish and Wildlife Service to impose measures on the Department of Transportation to mitigate the environmental impacts of a transportation project on endangered animal and plant species, as well as critical wildlife habitats. Locating any rare species that exist within the planning area during this early planning stage will help to avoid or minimize impacts.

A preliminary review of the Federally Listed Threatened and Endangered Species in the planning area was completed to determine what effects, if any, the recommended improvements may have on wildlife. Mapping from the N.C. Department of Environment and Natural Resources revealed occurrences of threatened or endangered plant and/or animal species in the planning area which

are summarized in **Table 5**. These species are not impacted by any recommendations found in the CTP.

Table 5 Threatened or Endangered Species

Species	Common Name	Major Group	Status	
			NC	Federal
Cyprinella zanema	Santee Chub	Fish	SR	-
Lanius ludovicianus ludovicianus	Loggerhead Shrike	Bird	SC	-
Crotalus horridus	Timber Rattlesnake	Reptile	SC	-
Triodopsis fulciden	Dwarf Threetooth	Mollusk	SC	-
Mesic Mixed Hardwood Forest	-	Natural Community	S4	-
Basic Mesic Forest	-	Natural Community	S2	-
Draba reptans	Creeping Draba	Vascular Plant	SR-P	-
Helenium pinnatifidum	Dissected Sneezeweed	Vascular Plant	SR-P	-
Hexastylis naniflora	Dwarf-flowered Heartleaf	Vascular Plant	T	T
Rhus michauxii	Michaux's Sumac	Vascular Plant	E-SC	E
Thermopsis mollis sensu stricto	Appalachian Golden-banner	Vascular Plant	SR-P	-
Symphyotrichum georgianum	Georgia Aster	Vascular Plant	T	C

- See **Appendix E** for definitions of status.

Historic Sites

Section 106 of the National Historic Preservation Act requires the Department of Transportation to identify historic properties listed in, as well as eligible for, the National Register of Historic Places (NRHP). The NCDOT must consider the impacts of transportation projects on these properties and consult with the Federal Advisory Council on Historic Preservation.

N.C. General Statute 121-12(a) requires the NCDOT to identify historic properties listed on the National Register, but not necessarily those that are eligible to be listed. The NCDOT must consider the impacts and consult with the N.C. Historical Commission, but is not bound by their recommendations.

The location of historic sites within the planning area was investigated to determine any possible impacts resulting from the recommended improvements. This investigation identified several properties listed on the NRHP, which are listed in **Table 6**. However, these historic building sites will not be impacted by any of the recommended improvements.

Table 6 Historic Resources		
Resource Name	**Location**	**Listed**
Vesuvius Furnace	Catawba Springs	August 1974
Ingleside	Iron Station	April 1972
Magnolia Grove	Iron Station	March 1972
Magnolia Grove (Boundary Increase)	Iron Station	June 1997
Graham, William A., Jr., Farm	Kidville	May 1977
Laboratory Historic District	Laboratory	December 2003
Tucker's Grove Camp Meeting Ground	Machpelah	October 1972
Salem Union Church and Cemetery	Maiden	October 1995
Mount Welcome	Mariposa	September 1991
Andrew Seagle Farm	Reepsville	February 1975

Archaeological Sites

The location of recorded archaeological sites was researched to determine the possible impacts of proposed roadway projects. This initial investigation identified no known archaeological sites within the planning area, but archaeological sites are often difficult to identify without actual field excavation. As a result, possible sites may not be identified during the initial planning process and each proposed project should be evaluated individually prior to construction.

Educational Facilities

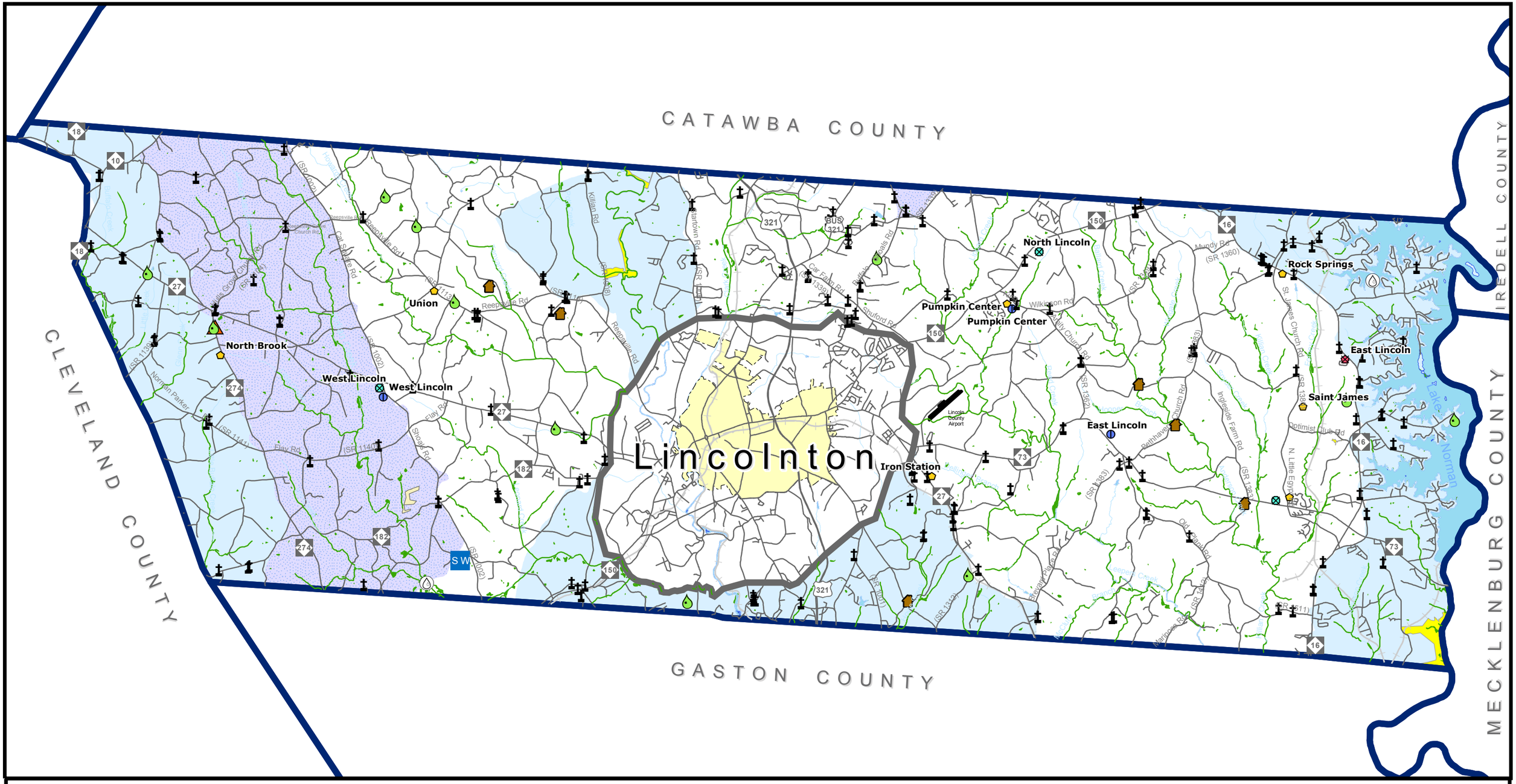
The location of educational facilities in the planning area was considered during the development of the CTP. There are two proposed schools in Lincoln County. One proposed school will be located along Startown Road (SR 1005) and the other proposed school will be located along Owl's Den Road (SR 1202). No proposed facilities or improvements shall displace any school or other educational facility.

Demographics

As mandated by Title VI of the Civil Rights Act of 1964 and Executive Order 12898, the proposed actions recommended in the CTP have been reviewed with respect to impacts to minority and low-income populations established in the 2000 Census. Results of this review for each recommended improvement are included in Chapter 2.

Parks and Open Spaces

The location of parks and open spaces in the planning area was considered during the development of the CTP. There are several parks and several proposed parks found on the Lincoln County Land Use Plan. No improvements shall displace any park or open space.



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BASE MAP DATE: AUGUST 2004

Legend

- ‡ Churches
- ⬟ Elementary School
- ● Middle School
- ⊗ High School
- ☐ New School
- ⊗ Charter School
- ☒ Special School
- ▭ City Boundary
- ▭ Urban Planning Boundary
- — Rivers and Streams
- ■ Lakes
- — Airport
- ---- Pipe, Transmission & Airport Lines
- ■ National Wetland Inventory
- — National Wetland Inventory
- ⌂ Historic National Register Structures
- ▲ Hazardous Substance Disposal Sites
- ▨ Hazardous Substance Disposal Areas
- SW Solid Waste Facility
- ● Groundwater Incidents
- ○ Surface Water Intakes
- ▨ High Quality Water Zones
- ■ Water Supply Watersheds
- ■ Land Trust Conservation Properties
- ■ Conservation and Open Space
- ■ Land & Water Conservation Fund Properties
- ■ Conservation Easements

FIGURE 9

ENVIRONMENTAL FEATURES

Lincoln County

NORTH CAROLINA

V. Public Involvement

Overview

Since the passage of the Federal Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), the emphasis on public involvement in transportation has taken on a new role. Although public participation has been an element of long range transportation planning in the past, these regulations call for a much more proactive approach. The NCDOT Transportation Planning Branch has a long history of making public involvement a key element in the development of any long range transportation plan, no matter the size of the city and/or planning area. This chapter is designed to provide an overview of the public involvement elements implemented into the development of the CTP for the planning area.

Study Initiation

The Lincoln County Commissioners requested a CTP in 2002. This request was supported by the Lake Norman RPO. The Transportation Planning Branch met with the County on August 5, 2004 to identify the primary transportation concerns and to define the scope of the study.

Public Drop-in Session

Lincoln County hosted two drop-in sessions to offer the public an opportunity to comment on the proposed CTP. These sessions were held on May 18, 2005 in the Commissioner's Room of the Lincolnton Citizen's Center and on May 19, 2005 in the East Lincoln Recreation Center.

Representatives from the County and the NCDOT were available to explain the proposed CTP and answer questions. Attendees were encouraged to write comments on each CTP element on post-it notes and attach the notes to the CTP maps.

Appendix F presents a listing of public drop-in session attendees, a summary of questions asked by attendees at the meetings with responses, and the result of the public involvement effectiveness survey.

VI. Conclusion

Lincoln County is a growing county that will require improvements to their transportation systems over the next thirty years. It is the responsibility of the County to take the initiative for the implementation of the CTP. It is imperative that the local areas aggressively pursue funding for desired projects. Questions regarding funding, projects, planning, and modes of transportation should be addressed to the appropriate branch within NCDOT. **Appendix A** includes contact information for many of these Branches. If changes are required for any element of the CTP, then all other elements must be reviewed for resulting impacts. Prior to implementation of any transportation projects, additional public involvement and analysis of impacts to the natural environment will need to be conducted.

APPENDIX A

NCDOT
Contacts

Resources & Contacts

North Carolina Department of Transportation

Customer Service Office
1-877-DOT4YOU
(1-877-368-4968)

Secretary of Transportation
1501 Mail Service Center
Raleigh, NC 27699-1501
(919) 733-2520

Board of Transportation Member
Contact information for the current Board of Transportation Member may be accessed from the NCDOT homepage on the worldwide web *(http://www.ncdot.org/board/)* or by calling 1-877-DOT4YOU.

Highway Division 12

- **Division Engineer**
  Contact the Division Engineer with general questions concerning NCDOT activities within Division 12 or information on Small Urban Funds.
  P.O. Box 47
  Shelby, NC 28151-0047
  (704) 480-9025

- **Division Construction Engineer**
  Contact the Division Construction Engineer for information concerning major roadway improvements under construction.
  P.O. Box 47
  Shelby, NC 28151-0047
  (704) 480-9024

- **Division Traffic Engineer**
  Contact the Division Traffic Engineer for information concerning high-collision locations.
  P.O. Box 47
  Shelby, NC 28151-0047
  (704) 480-9033

- **District Engineer**
  Contact the District Engineer for information regarding Driveway Permits, Right of Way Encroachments, and Development Reviews.
  1031 E. Gaston Street
  Lincolnton, NC 28082
  (704) 748-2400

- **County Maintenance Engineer**
  Contact the County Maintenance Engineer regarding any maintenance activities, such as drainage.
  499 Roper Drive
  Lincolnton, NC 28092
  (704) 735-5212

Centralized Personnel

- **Transportation Planning Branch**
  Contact the Transportation Planning Branch with long-range planning questions.
  1554 Mail Service Center
  Raleigh, NC 27699-1554
  (919) 715-5737

- **Secondary Roads Office**
  Contact the Secondary Roads Officer for information regarding the Industrial Access Funds Program.
  1535 Mail Service Center
  Raleigh, NC 27699-1535
  (919) 733-3250

- **Program Development Branch**
  Contact the Program Development Branch for information concerning Roadway Official Corridor Maps and the Transportation Improvement Program (TIP).
  1542 Mail Service Center
  Raleigh, NC 27699-1542
  (919) 733-2031

- **Project Development & Environmental Analysis Branch**
  Contact PDEA for information on environmental studies for projects that are included in the TIP.
  1548 Mail Service Center
  Raleigh, NC 27699-1548
  (919) 733-3141

- **Traffic Engineering & Safety Systems Branch**
  Contact the Traffic Engineering & Safety Systems Branch for information regarding Development Reviews.
  1561 Mail Service Center
  Raleigh, 27699-1561
  (919) 733-3915

- **Highway Design Branch**
  Contact the Highway Design Branch for information regarding alignments for projects that are included in the TIP.
  1584 Mail Service Center
  Raleigh, 27699-1584
  (919) 250-4001

- **Bicycle and Pedestrian Division**
  Contact the Bicycle and Pedestrian Division for information regarding projects in the TIP, funding, and events.
  1552 Mail Service Center
  Raleigh, 27699-1552
  (919) 733-2804

- **Public Transportation Division**
  Contact the Public Transportation Division for information regarding planning and funding for public transportation projects.
  1550 Mail Service Center
  Raleigh, 27699-1550
  (919) 733-4713

- **Railroad Division**
  Contact the Railroad Division for information regarding engineering and safety, operations, and planning.
  1553 Mail Service Center
  Raleigh, 27699-1553
  (919) 733-7245

- **Other departments**

  Contact information for other departments within the NCDOT not listed here are available at the NCDOT homepage on the worldwide web (http://www.ncdot.org/) or by calling 1-877-DOT4YOU.

Other Contacts

- **Lake Norman Rural Planning Organization (RPO)**
  Contact the Lake Norman RPO for information regarding socio-economic data, public involvement, regional topics, and planning.
  P. O. Box 35008
  Charlotte, 28235
  (704) 372-2416

APPENDIX B

Definitions Of Comprehensive Transportation Plan Categories

Definitions for CTP Maps

Highway Map

- Freeways[1]
  - Functional purpose – high mobility, high volume, high speed
  - Posted speed – 55 mph or greater
  - Cross section – minimum four lanes with continuous median
  - Multi-modal elements – High Occupancy Vehicles (HOV)/High Occupancy Transit (HOT) lanes, busways, truck lanes, park-and-ride facilities at/near interchanges, adjacent shared use paths (separate from roadway and outside ROW)
  - Type of access control – full control of access
  - Access management – interchange spacing (urban – one mile; non-urban – three miles); at interchanges on the intersecting roadway, full control of access for 1,000' or for 350' plus 650' island or median; use of frontage roads, rear service roads
  - Intersecting facilities – interchange or grade separation (no signals or at-grade intersections)
  - Driveways – not allowed
- Expressways[1]
  - Functional purpose – high mobility, high volume, medium-high speed
  - Posted speed – 45 to 60 mph
  - Cross section – minimum four lanes with median
  - Multi-modal elements – HOV lanes, busways, very wide paved shoulders (rural), shared use paths (separate from roadway but within ROW)
  - Type of access control – limited or partial control of access;
  - Access management – minimum interchange/intersection spacing 2,000 feet; median breaks only at intersections with minor roadways or to permit U-turns; use of frontage roads, rear service roads; driveways limited in location and number; use of acceleration/deceleration or right turning lanes
  - Intersecting facilities – interchange; at-grade intersection for minor roadways; right-in/right-out and/or left-over or grade separation (no signalization for through traffic)
  - Driveways – right-in/right-out only; direct driveway access via service roads or other alternate connections
- Boulevards
  - Functional purpose – moderate mobility; moderate access, moderate volume, medium speed
  - Posted speed – 30 to 55 mph
  - Cross section – two or more lanes with median (median breaks allowed for U-turns per current NCDOT *Driveway Manual*
  - Multi-modal elements – bus stops, bike lanes (urban) or wide paved shoulders (rural), sidewalks (urban - local government option)
  - Type of access control – limited control of access, partial control of access, or no control of access
  - Access management – two lane facilities may have medians with crossovers, medians with turning pockets or turning lanes; use of acceleration/deceleration or right turning lanes is optional; for abutting properties, use of shared driveways, internal out parcel access and cross-connectivity between adjacent properties is strongly encouraged

- Intersecting facilities – at grade intersections and driveways; interchanges at special locations with high volumes
- Driveways – primarily right-in/right-out, some right-in/right-out in combination with median leftovers; major driveways may be full movement when access is not possible using an alternate roadway

- Other Major Thoroughfares
  - Functional purpose – balanced mobility and access, moderate volume, low to medium speed
  - Posted speed – 25 to 55 mph
  - Cross section – four or more lanes without median
  - Multi-modal elements – bus stops, bike lanes/wide outer lane (urban) or wide paved shoulder (rural), sidewalks (urban)
  - Type of access control – no control of access
  - Access management – continuous left turn lanes; for abutting properties, use of shared driveways, internal out parcel access and cross-connectivity between adjacent properties is strongly encouraged
  - Intersecting facilities – intersections and driveways
  - Driveways – full movement on two lane roadway with center turn lane as permitted by the current NCDOT *Driveway Manual*
- Minor Thoroughfares
  - Functional purpose – balanced mobility and access, moderate volume, low to medium speed
  - Posted speed – 25 to 45 mph
  - Cross section – ultimately three lanes (no more than one lane per direction) or less without median
  - Multi-modal elements – bus stops, bike lanes/wide outer lane (urban) or wide paved shoulder (rural), sidewalks (urban)
  - ROW – no control of access
  - Access management – continuous left turn lanes; for abutting properties, use of shared driveways, internal out parcel access and cross-connectivity between adjacent properties is strongly encouraged
  - Intersecting facilities – intersections and driveways
  - Driveways – full movement on two lane with center turn lane as permitted by the current NCDOT *Driveway Manual*
- Existing – Roadway facilities that are not recommended to be improved.
- Needs Improvement – Roadway facilities that need to be improved for capacity, safety, or system continuity. The improvement to the facility may be widening, other operational strategies, increasing the level of access control along the facility, or a combination of improvements and strategies. "**Needs improvement" does not refer to the maintenance needs of existing facilities.**
- Recommended – Roadway facilities on new location that are needed in the future.
- Interchange – Through movement on intersecting roads is separated by a structure. Turning movement area accommodated by on/off ramps and loops.
- Grade Separation – Through movement on intersecting roads is separated by a structure. There is no direct access between the facilities.
- Full Control of Access – Connections to a facility provided only via ramps at interchanges. No private driveway connections allowed.
- Limited Control of Access – Connections to a facility provided only via ramps at interchanges (major crossings) and at-grade intersections (minor crossings and service roads). No private driveway connections allowed.

- Partial Control of Access – Connections to a facility provided via ramps at interchanges, at-grade intersections, and private driveways. Private driveway connections shall be defined as a maximum of one connection per parcel. One connection is defined as one ingress and one egress point. These may be combined to form a two-way driveway (most common) or separated to allow for better traffic flow through the parcel. The use of shared or consolidated connections is highly encouraged.
- No Control of Access – Connections to a facility provided via ramps at interchanges, at-grade intersections, and private driveways.

Public Transportation and Rail Map

- Bus Routes – The primary fixed route bus system for the area. Does not include demand response systems.
- Fixed Guideway – Any transit service that uses exclusive or controlled rights-of-way or rails, entirely or in part. The term includes heavy rail, commuter rail, light rail, monorail, trolleybus, aerial tramway, included plane, cable car, automated guideway transit, and ferryboats.
- Operational Strategies – Plans geared toward the non-single occupant vehicle. This includes but is not limited to HOV lanes or express bus service.
- Rail Corridor – Locations of railroad tracks that are either active or inactive tracks. These tracks were used for either freight or passenger service.
  - Active – rail service is currently provided in the corridor; may include freight and/or passenger service
  - Inactive – right of way exists; however, there is no service currently provided; tracks may or may not exist
  - Recommended – It is desirable for future rail to be considered to serve an area.
- High Speed Rail Corridor – Corridor designated by the U.S. Department of Transportation as a potential high speed rail corridor.
  - Existing – Corridor where high speed rail service is provided (there are currently no existing high speed corridor in North Carolina).
  - Recommended – Proposed corridor for high speed rail service.
- Rail Stop – A railroad station or stop along the railroad tracks.
- Intermodal Connector – A location where more than one mode of public transportation meet such as where light rail and a bus route come together in one location or a bus station.
- Park and Ride Lot – A strategically located parking lot that is free of charge to anyone who parks a vehicle and commutes by transit or in a carpool.

Bicycle Map

- On Road-Existing – Conditions for bicycling on the highway facility are adequate to safely accommodate cyclists.
- On Road-Needs Improvement – At the systems level, it is desirable for the highway facility to accommodate bicycle transportation; however, highway improvements are necessary to create safe travel conditions for the cyclists.
- On Road-Recommended – At the systems level, it is desirable for a recommended highway facility to accommodate bicycle transportation. The highway should be designed and built to safely accommodate cyclists.
- Off Road-Existing – A facility that accommodates bicycle transportation (may also accommodate pedestrians, eg. greenways) and is physically separated from a highway facility usually on a separate right-of-way.

- Off Road-Needs Improvement – A facility that accommodates bicycle transportation (may also accommodate pedestrians, eg. greenways) and is physically separated from a highway facility usually on a separate right-of-way that will not adequately serve future bicycle needs. Improvements may include but are not limited to: widening, paving (not re-paving), improved horizontal or vertical alignment.
- Off Road-Recommended – A facility needed to accommodate bicycle transportation (may also accommodate pedestrians, eg. greenways) and is physically separated from a highway facility usually on a separate right-of-way. This may also include greenway segments that do not necessarily serve a transportation function but intersect recommended facilities on the highway map or public transportation and rail map.

Pedestrian Map

Format for the pedestrian map is under development.

[1]Every effort will be made to ensure that all Tier 1 (Statewide importance) facilities on the NCMIN (North Carolina Multimodal Investment Network) will be Freeway or Expressway on the Comprehensive Transportation Plan

APPENDIX C

Comprehensive
Transportation
Plan
Tabulations
&
Recommendations

Highway

Facility & Segment From	To	Distance (mi)	Existing System Cross-Section lanes	Existing System Cross-Section (ft)	Existing System ROW (ft)	Existing System Speed Limit (mph)	Existing System Capacity (vpd)	Existing System 2003 ADT	Proposed System Capacity (vpd)	Proposed System 2030 ADT	Proposed System Cross-Section	Proposed System ROW (ft)	Other Maps
Amity Church Road (SR 1362)													
King Wilkinson Road (SR 1349)	NC 73	3.01	2	18	N/A	55	11,000	2,400	11,000	4,000	K	70	
Brevard Place Road (SR 1360)													
NC 27	Scenic Drive (SR 1702)	2.22	2	20	130	55	11,000	900	11,000	1,500	K	ADQ	
Scenic Drive (SR 1702)	NC 73	2.46	2	20	60	55	11,000	500	11,000	900	K	70	
NC 73	Ingleside Farm Road (SR 1383)	2.75	2	20	N/A	55	11,000	1,400	11,000	2,400	K	70	
Ingleside Farm Road (SR 1383)	King Wilkinson Road (SR 1349)	2.76	2	20	N/A	55	11,000	900	11,000	1,500	K	70	
Buffalo Shoals Road (SR 1003)													
Shuford Road (SR 1339)	Grape Vineyard Road (SR 1343)	5.35	2	20	60	55	11,000	3,900	11,000	6,700	K	70	
Grape Vineyard Road (SR 1343)	Catawba County Line	6.20	2	20	60	55	11,000	2,600	11,000	5,200	K	70	
Campground Road (SR 1373)													
Catawba County Line	Catawba Burris Road (SR 1374)	1.45	2	22	N/A	55	11,000	7,000	11,000	11,900	E	110	
Catawba Burris Road (SR 1374)	NC 16	0.64	2	22	N/A	55	11,000	8,600	11,000	16,800	E	110	
Cat Square/Shoal Road (SR 1002)													
Catawba County Line	Reepsville Road (SR 1113)	2.01	2	22	60	55	11,000	1,700	11,000	2,200	K	70	
Reepsville Road (SR 1113)	Cansler Road (SR 1197)	2.60	2	22	60	55	11,000	1,400	11,000	1,800	K	70	
Cansler Road (SR 1197)	NC 27	1.29	2	22	60	55	10,700	2,100	10,700	4,100	K	70	
NC 27	Howards Creek Mill Road (SR 1194)	0.57	2	24	60	55	11,000	2,200	11,000	4,400	K	70	
Howards Creek Mill Road (SR 1194)	NC 182	2.67	2	20	60	55	11,000	2,000	11,000	4,000	K	70	
NC 182	Gaston County Line	2.47	2	20	60	55	11,000	1,600	11,000	2,700	K	70	
Davids Chapel Road (SR 1139)													
Cleveland County	Williams Road (SR 1141)	0.23	2	18	N/A	35	11,000	430	11,000	600	K	70	
Williams Road (SR 1141)	King Road (SR 1134)	0.60	2	18	N/A	55	11,000	430	11,000	600	K	70	
King Road (SR 1134)	NC 27	1.57	2	18	N/A	55	11,000	190	11,000	300	K	70	
Devine Road (SR 1312)													
NC 27	Gaston County Line	1.80	2	18	N/A	55	11,000	780	11,000	1,300	K	70	
Little Egypt Road (SR 1386)													
NC 16	NC 16 Bypass	1.24	2	20	60	55	11,000	7,000	11,000	11,700	K	70	
NC 16 Bypass	Kidville Road (SR 1381)	1.42	2	20	60	55	11,000	800	11,000	1,800	K	70	
Kidville Road (SR 1381)	Optimist Club Road (SR 1380)	1.28	2	20	60	55	11,000	1,300	11,000	2,500	K	70	
Optimist Club Road (SR 1380)	NC 73	1.92	2	20	60	45	11,000	2,800	11,000	3,800	K	70	
Flay Road (SR 1140)													
NC 274	Harrelson Road (SR 1159)	1.40	2	20	N/A	55	11,000	760	11,000	1,000	K	70	
Harrelson Road (SR 1159)	Shoal Road (SR 1002)	2.12	2	20	N/A	55	11,000	1,700	11,000	2,200	K	70	
Shoal Road (SR 1002)	NC 27	1.24	2	20	N/A	55	11,000	1,200	11,000	2,600	K	70	

The Other Maps column means that these facilities are included on other Comprehensive Transportation Plan elements and these elements should be reviewed.

Highway  Public Transportation and Rail  Bicycle  Pedestrian 

Highway

Facility & Segment From	To	Distance (mi)	Existing System Cross-Section lanes	Cross-Section (ft)	ROW (ft)	Speed Limit (mph)	Capacity (vpd)	2003 ADT	Proposed System Capacity (vpd)	2030 ADT	Cross-Section	ROW (ft)	Other Maps
Hulls Grove Church Road (SR 1104)													
Reepsville Rd (SR 1113)	Hulls Grove Church Road (SR 1111)	1.20	2	20	N/A	55	11,000	700	11,000	900	K	70	
Hulls Grove Church Road (SR 1111)													
NC 27	Hulls Grove Church Road (SR 1104)	1.63	2	20	N/A	55	11,000	1,100	11,000	2,200	K	70	
Ingleside Farm Road (SR 1383)													
Beth Haven Road (SR 1360)	Anderson Branch Road (SR 1385)	2.37	2	20	60	45	11,000	1,300	11,000	2,200	K	70	
Anderson Branch Road (SR 1385)	NC 73	1.01	2	20	60	55	11,000	1,400	11,000	3,800	K	70	
NC 73	Old Plank Road (SR 1511)	1.65	2	18	60	45	11,000	1,400	11,000	3,800	K	70	
Killian Road (SR 1008)													
Catawba County Line	Daniels Church Road (SR 1203)	2.99	2	18	N/A	55	11,000	670	11,000	1,100	K	70	
Daniels Church Road (SR 1203)	Reepsville Road (SR 1113)	0.72	2	18	N/A	55	11,000	640	11,000	1,100	K	70	
Reepsville Road (SR 1113)	Lincolnton City Limits	6.82	2	20	N/A	55	11,000	640	11,000	1,100	K	70	
King Wilkinson/Mundy Road (SR 1349)													
NC 16	Tuckers Grove (SR 1360)	1.11	2	20	60	55	11,000	1,100	11,000	1,900	K	70	
Tuckers Grove (SR 1360)	NC 150	5.54	2	18	60	55	11,000	850	11,000	1,500	K	70	
Mariposa Road (SR 1412)													
Gaston County Line	Old Plank Road (SR 1511)	2.00	2	22	80	55	11,000	2,100	11,000	4,700	K	ADQ	
NC 10													
Cleveland County Line	NC 18	0.70	2	20	100	55	11,000	4,400	11,000	7,000	K	ADQ	
NC 18	Catawba County Line	1.60	2	24	60	45	11,000	1,700	11,000	6,500	B-4	70	
NC 16													
Gaston County Line	Sifford Road (SR 1397)	1.13	2	24	100	55	13,900	17,000	13,900	9,000	ADQ	ADQ	
Sifford Road (SR 1397)	NC 73	2.05	2	24	100	50	13,900	14,000	13,900	11,400	ADQ	ADQ	
NC 73	Pilot Knob Road (SR 1394)	0.84	2	24	100	50	13,900	15,000	13,900	16,700	ADQ	ADQ	
Pilot Knob Road (SR 1394)	Old NC 73 (SR 1439)	1.48	2	24	100	50	13,900	20,000	13,900	16,000	ADQ	ADQ	
Old NC 73 (SR 1439)	Fairfield Forest Road (SR 1389)	1.39	2	24	100	50	13,900	17,000	13,900	15,000	ADQ	ADQ	
Fairfield Forest Road (SR 1389)	Webbs Road (SR 1379)	1.50	2	24	100	50	13,900	17,000	13,900	19,600	ADQ	ADQ	
Webbs Road (SR 1379)	Forest Hills Drive (SR 1771)	1.20	2	24	100	50	13,900	15,000	13,900	18,000	ADQ	ADQ	
Forest Hills Drive (SR 1771)	Campground Road (SR 1373)	0.58	3	36	100	35	13,900	16,000	13,900	14,000	ADQ	ADQ	
Campground Road (SR 1373)	Leonard Access Road (SR 1749)	0.43	2	24	60	35	13,900	13,000	13,900	18,000	ADQ	ADQ	
Leonard Access Road (SR 1749)	Catawba County Line	1.67	2	24	60	55	13,900	7,000	13,900	11,900	ADQ	ADQ	

The Other Maps column means that these facilities are included on other Comprehensive Transportation Plan elements and these elements should be reviewed.

Highway  Public Transportation and Rail  Bicycle  Pedestrian 

Highway

Facility & Segment From	To	Distance (mi)	Existing System Cross-Section lanes	Existing System Cross-Section (ft)	Existing System ROW (ft)	Existing System Speed Limit (mph)	Existing System Capacity (vpd)	Existing System 2003 ADT	Proposed System Capacity (vpd)	Proposed System 2030 ADT	Proposed System Cross-Section	Proposed System ROW (ft)	Other Maps
NC 16 Bypass													
Gaston County Line	Sifford Road (SR 1397)	1.08	N/A	N/A	N/A	N/A	N/A	N/A	39,300	21,600	A	250	
Sifford Road (SR 1397)	NC 73	2.36	N/A	N/A	N/A	N/A	N/A	N/A	39,300	21,600	A	250	
NC 73	Optimist Club Road (SR 1380)	1.90	N/A	N/A	N/A	N/A	N/A	N/A	39,300	22,300	A	250	
Optimist Club Road (SR 1380)	St. James Church Road (SR 1386)	2.90	N/A	N/A	N/A	N/A	N/A	N/A	39,300	20,200	A	250	
St. James Church Road (SR 1386)	Catawba County Line	3.93	N/A	N/A	N/A	N/A	N/A	N/A	39,300	14,600	A	250	
NC 18													
Cleveland County Line	NC 10 junction	1.95	2	24	60	55	11,000	4,200	11,000	5,500	B-4	70	
NC 10 junction	Catawba County Line	1.71	2	24	60	55	11,000	2,300	11,000	5,000	ADQ	ADQ	
NC 27													
Cleveland County Line	NC 18	0.05	2	24	60	55	11,000	550	11,000	700	ADQ	ADQ	
NC 18	Rockdale Road (SR 1117)	1.73	2	24	60	55	11,000	1,500	11,000	1,800	ADQ	ADQ	
Rockdale Road (SR 1117)	North Brook Road (SR 1114)	1.02	2	24	60	55	11,000	1,900	11,000	2,500	ADQ	ADQ	
North Brook Road (SR 1114)	NC 274 (Hulls Crossroads)	0.22	2	24	60	55	11,000	2,100	11,000	2,400	ADQ	ADQ	
NC 274 (Hulls Crossroads)	Hulls Grove Church Road (SR 1111)	0.06	2	24	60	55	11,000	3,500	11,000	5,000	ADQ	ADQ	
Hulls Grove Church Road (SR 1111)	Cedar Grove Church Road (SR 1127)	1.50	2	24	60	55	11,000	2,600	11,000	3,400	ADQ	ADQ	
Cedar Grove Church Road (SR 1127)	Beam Road (SR 1129)	0.56	2	24	60	55	11,000	3,100	11,000	4,100	ADQ	ADQ	
Beam Road (SR 1129)	Flay Road (SR 1140)	2.50	2	24	60	55	11,000	3,900	11,000	5,100	ADQ	ADQ	
Flay Road (SR 1140)	Zion Hill Church Road (SR 1185)	2.17	2	24	60	55	11,000	4,500	11,000	5,900	ADQ	ADQ	
Zion Hill Church Road (SR 1185)	Rock Dam Road (SR 1184)	0.05	2	24	60	55	11,000	6,400	11,000	10,800	ADQ	ADQ	
Lincolnton Planning Boundary	Lincolnton Planning Boundary												
NC 73	McMillian Heights Road (SR 1672)	0.55	2	22	60	55	11,000	7,500	11,000	13,100	E	110	
McMillian Heights Road (SR 1672)	Devine Road (SR 1312)	3.06	2	22	60	55	11,000	8,400	11,000	15,300	E	110	
Devine Road (SR 1312)	Gaston County Line	2.12	2	22	60	55	11,000	5,800	11,000	10,500	E	110	
NC 73													
NC 27	Will Schronce Road (SR 1314)	2.07	2	22	100	55	11,000	8,100	11,000	14,500	B-1	110	
Will Schronce Road (SR 1314)	Reinhardt Circle (SR 1509)	0.58	2	24	100	55	11,000	7,000	11,000	13,500	B-1	110	
Reinhardt Circle (SR 1509)	Trinity Church Road (SR 1355)	1.00	2	24	100	55	11,000	7,000	11,000	8,000	B-4	ADQ	
Trinity Church Road (SR 1355)	0.65 east of Brevard Place Road (SR 1360)	3.21	2	22	100	55	11,000	10,000	11,000	8,000	B-4	ADQ	
0.65 east of Brevard Place Road (SR 136	Ingleside Farm Road (SR 1383)	2.34	2	24	100	55	11,000	8,300	11,000	14,300	B-1	110	
Ingleside Farm Road (SR 1383)	NC 16 Bypass	1.79	2	24	100	55	13,900	11,000	13,900	18,200	B-1	110	
NC 16 Bypass	NC 16	0.57	2	24	100	55	13,900	15,400	13,900	30,200	B-1	110	
NC 16	Pilot Knob Road (SR 1394)	0.38	2	24	100	55	13,900	15,000	13,900	28,000	B-1	110	
Pilot Knob Road (SR 1394)	Club Drive (SR 1395)	1.16	2	24	100	55	13,900	17,000	13,900	38,400	B-1	110	
Club Drive (SR 1395)	Mecklenburg County Line	1.16	2	24	100	55	13,900	16,000	13,900	33,000	B-1	110	
NC 73 New Location													
Reinhardt Circle (SR 1509)	0.65 east of Brevard Place Road (SR 1360)	3.33	N/A	N/A	N/A	N/A	N/A	N/A	39,300	17,800	B-1	110	

The Other Maps column means that these facilities are included on other Comprehensive Transportation Plan elements and these elements should be reviewed.

Highway  Public Transportation and Rail  Bicycle  Pedestrian 

Highway

Facility & Segment From	To	Distance (mi)	Existing System Cross-Section lanes	Existing System Cross-Section (ft)	Existing System ROW (ft)	Existing System Speed Limit (mph)	Existing System Capacity (vpd)	Existing System 2003 ADT	Proposed System Capacity (vpd)	Proposed System 2030 ADT	Proposed System Cross-Section	Proposed System ROW (ft)	Other Maps
NC 150													
Gaston County Line	Begin Curb	0.70	2	22	150	45	11,000	6,900	11,000	9,700	F	ADQ	
Begin Curb	End Curb	0.36	4	48	150	45	39,300	9,500	39,300	13,800	F	ADQ	
End Curb	Old Crouse Road (SR 1228)	1.01	2	22	150	55	11,000	9,100	11,000	13,200	F	ADQ	
Old Crouse Road (SR 1228)	Cherryville Highway (SR 1407)	0.64	2	22	150	55	11,000	8,900	11,000	12,000	F	ADQ	
Lincolnton Planning Boundary	Lincolnton Planning Boundary												
Mauney Road (SR 1351)	Otis Dellinger Road (SR 1350)	1.95	2	24	60	55	11,000	8,100	11,000	13,800	E	110	
Otis Dellinger Road (SR 1350)	Catawba County Line	4.62	2	24	60	55	11,000	7,300	11,000	12,800	E	110	
NC 182													
Cleveland County Line	NC 274	2.63	2	18	60	55	11,000	810	11,000	1,200	B-4	70	
NC 274	Leonhardt Road (SR 1167)	2.02	2	20	60	55	11,000	810	11,000	1,200	B-4	70	
Leonhardt Road (SR 1167)	Shoal Road (SR 1002)	1.66	2	20	60	55	11,000	860	11,000	1,700	B-4	70	
Shoal Road (SR 1002)	Leonard Fork Church Road (SR 1179)	1.44	2	20	60	55	11,000	1,100	11,000	1,800	B-4	70	
Leonards Fork Church Road (SR 1179)	Howards Creek Road (SR 1187)	1.51	2	20	60	55	11,000	2,200	11,000	4,300	B-4	70	
Howards Creek Road (SR 1187)	George Brown Road (SR 1180)	0.57	2	20	60	55	11,000	2,200	11,000	4,300	B-4	70	
George Brown Road (SR 1180)	Gainsville Church Road (SR 1181)	0.88	2	20	60	55	11,000	2,900	11,000	6,800	B-4	70	
Gainsville Church Road (SR 1181)	NC 27	1.32	2	20	60	55	11,000	3,300	11,000	6,600	B-4	70	
NC 274													
Gaston County Line	NC 182	1.39	2	24	60	55	11,000	2,600	11,000	3,600	ADQ	ADQ	
NC 182	Baxter Road (SR 1152)	1.42	2	24	60	55	11,000	2,100	11,000	2,900	ADQ	ADQ	
Baxter Road (SR 1152)	SR 1137	3.33	2	24	60	55	11,000	2,800	11,000	3,700	ADQ	ADQ	
SR 1137	NC 27	1.54	2	24	60	55	11,000	2,200	11,000	2,900	ADQ	ADQ	
Norman Parker Road (SR 1141)													
Davids Chapel Road (SR 1139)	Flay Road (SR 1140)	1.70	2	20	60	55	11,000	300	11,000	400	K	70	
Old Plank Road (SR 1511)													
NC 73	Mariposa Road (SR 1412)	3.68	2	20	N/A	55	11,000	2,200	11,000	3,900	K	70	
Mariposa Road (SR 1412)	NC 16	2.82	2	22	N/A	55	11,000	5,100	11,000	12,000	K	70	
Optimist Club Road (SR 1380)													
Little Egypt Road (SR 1386)	NC 16 Bypass	0.55	2	20	60	55	11,000	3,000	11,000	7,900	B-3	70	
NC 16 Bypass	Smith Road (SR 1387)	0.94	2	20	60	55	11,000	2,900	11,000	6,800	B-3	70	
Philadelphia Church Road (SR 1001)													
Gaston County Line	Salem Church Road (SR 1307)	1.69	2	22	N/A	35	11,000	1,400	11,000	2,400	K	70	
Salem Church Road (SR 1307)	South Laurel Street (SR 1262)	1.87	2	24	60	45	11,000	4,300	11,000	7,300	K	70	

The Other Maps column means that these facilities are included on other Comprehensive Transportation Plan elements and these elements should be reviewed.

Highway Public Transportation and Rail Bicycle Pedestrian

Highway

Facility & Segment From	To	Distance (mi)	Existing System Cross-Section lanes	Existing System Cross-Section (ft)	Existing System ROW (ft)	Existing System Speed Limit (mph)	Existing System Capacity (vpd)	Existing System 2003 ADT	Proposed System Capacity (vpd)	Proposed System 2030 ADT	Proposed System Cross-Section	Proposed System ROW (ft)	Other Maps
Reepsville Road (SR 1113)													
Hulls Grove Church Road (SR 1111)	Cat Square Road (SR 1002)	2.50	2	20	N/A	55	11,000	1,100	11,000	1,300	B-4	70	
Cat Square Road (SR 1002)	Johnson Road (SR 1208)	2.28	2	20	N/A	55	11,000	1,800	11,000	2,400	B-4	70	
Johnson Road (SR 1208)	Seagletown Road (SR 1205)	2.53	2	20	N/A	55	11,000	2,500	11,000	5,800	B-4	70	
Seagletown Road (SR 1205)	Killian Road (SR 1008)	2.66	2	20	N/A	55	11,000	4,000	11,000	7,600	B-4	70	
St. James Church Road (SR 1386)													
NC 16	Kidville Road (SR 1381)	3.19	2	20	N/A	45	11,000	1,700	11,000	3,300	K	70	
Kidville Road (SR 1381)	Optimist Club Road (SR 1380)	1.28	2	20	N/A	45	11,000	1,300	11,000	2,500	K	70	
Shuford Road (SR 1339)													
US 321 B	NC 150	3.07	2	20	60	55	11,000	3,300	11,000	6,500	K	70	
Smith Road (SR 1387)													
NC 16	Optimist Club Road (SR 1380)	0.38	2	20	60	55	11,000	1,600	11,000	6,800	K	70	
Startown Road (SR 1005)													
Catawba County Line	Bethel Church Road (SR 1282)	3.35	2	24	60	55	11,000	2,600	11,000	3,400	ADQ	ADQ	
Bethel Church Road (SR 1282)	Killian Road (SR 1008)	5.86	2	24	60	55	11,000	4,300	11,000	7,300	ADQ	ADQ	
Triangle Loop (SR 1388)													
Smith Road (SR 1387)	NC 16	0.53	2	20	N/A	55	11,000	1,600	11,000	6,800	K	70	
US 321 Business													
Gaston County Line	Salem Church Road (SR 1307)	0.33	2	22	60	55	11,000	3,000	11,000	5,100	K	70	
Salem Church Road (SR 1307)	US 321 Bypass	0.42	2	22	60	55	11,000	3,600	11,000	6,100	K	70	
US 321 Bypass	Brady Hoffman Road (SR 1562)	0.48	2	22	60	55	11,000	5,700	11,000	12,400	K	70	
Brady Hoffman Road (SR 1562)	Gates Road	1.22	2	22	60	55	11,000	5,300	11,000	7,700	K	70	
Lincolnton Planning Boundary	Lincolnton Planning Boundary												
Lincolnton Northern City Limits	Bethel Church Road (SR 1282)	0.54	2	24	60	55	11,000	9,100	11,000	12,000	ADQ	ADQ	
Bethel Church Road (SR 1282)	US 321 Bypass	1.61	2	24	100	55	11,000	7,500	11,000	10,200	ADQ	ADQ	
US 321 Bypass	Catawba County Line	2.41	2	24	60	55	11,000	6,200	11,000	10,700	ADQ	ADQ	

The Other Maps column means that these facilities are included on other Comprehensive Transportation Plan elements and these elements should be reviewed.

Highway  Public Transportation and Rail  Bicycle  Pedestrian 

Public Transportation and Rail

Facility and Segment From	To	Class	Speed Limit (mph)	Distance (mi)	Existing System Type	Existing System ROW (ft)	Existing System Trains per day	Proposed System Type	Proposed System ROW (ft)	Proposed System Trains per day	Other Maps
CSX Railroad (SFE Line)											
Southeastern Gaston County Line (To Mount Holly)	Northeastern Catawba County Line (To Tyrrell)	I	25	10.60	Freight	150 to 240	4	Freight	150 to 240	4	
CSX Railroad (SFED Line)											
CSX SFE Line	Cowan's Ford Dam	I	25	2.90	Freight	N/A	2	Freight	N/A	2	
CSX Railroad (SF Line)											
Southeastern Catawba County Line (To Hamlet)	Southwestern Gaston County Line (To Shelby)	I	25 to 40	15.6	Freight	200	8 to 10	Freight	200	8 to 10	
NCDOT Rail Corridor Preservation											
South of Maiden	North of Newton		N/A	6.6	Inactive	100	N/A	Trails	100	N/A	
Operational Strategies can be viewed on the Comprehensive Transportation Plan and are noted on the Highway tables.											

The Other Maps column means that these facilities are included on other Comprehensive Transportation Plan elements and these elements should be reviewed.

Highway  Public Transportation and Rail  Bicycle  Pedestrian 

Class II railroads are railroads whose annual income is less than $266.7 million.

Bicycle and Pedestrian

Facility and Segment From	To	Existing System Distance (mi)	Existing System Cross-Section lanes	Existing System Cross-Section (ft)	Proposed System Type	Proposed System Cross-Section	Other Maps
Catawba River							
Lincolnton Planning Boundary	Killian Road (SR 1008)	2.41	N/A	N/A	Off-road	B-5	
Fairfield Forest Road (SR 1389)							
NC 16	Lake Norman	1.21	2	N/A	On-road	B-3	
Forney Creek							
Optimist Club Road (SR 1380)	NC 73	2.00	N/A	N/A	Off-road	B-5	
NC 73	South Little Egypt Road (SR 1386)	0.28	N/A	N/A	Off-road	B-5	
South Little Egypt Road (SR 1386)	NC 73	2.91	N/A	N/A	Off-road	B-5	
Howards Creek							
Cansler Road (SR 1197)	Howards Creek Mill Road (SR 1194)	0.80	N/A	N/A	Off-road	B-5	
Howards Creek Mill Road (SR 1194)	Wise Road (SR 1193)	0.30	N/A	N/A	Off-road	B-5	
Wise Road (SR 1193)	Alf Hoover Road (SR 1200)	1.20	N/A	N/A	Off-road	B-5	
Alf Hoover Road (SR 1200)	Daniels Road (SR 1185)	1.10	N/A	N/A	Off-road	B-5	
Daniels Road (SR 1185)	Owls Den Road (SR 1202)	0.91	N/A	N/A	Off-road	B-5	
Owls Den Road (SR 1202)	Lincolnton Planning Boundary	1.21	N/A	N/A	Off-road	B-5	
Killian Creek							
NC 73	North Little Egypt Road (SR 1386)	1.96	N/A	N/A	Off-road	B-5	
Lake Norman Bicycle Route							
Beginning at NC 73 traveling around Lake Norman to Catawba County Line utilizing several non-network roads.		52.00	N/A	N/A	On-road	B-3	
NC 10							
Cleveland County Line	NC 18	0.70	2	20	On-road	B-4	
NC 18	Northbrook III School Road (SR 1114)	1.00	2	24	On-road	B-4	
NC 18							
Cleveland County Line	NC 10 Junction	1.95	2	24	On-road	B-4	
NC 10 Junction	Catawba County Line	1.71	2	24	On-road	B-4	

The Other Maps column means that these facilities are included on other Comprehensive Transportation Plan elements and these elements should be reviewed.

Highway  Public Transportation and Rail  Bicycle Pedestrian 

Bicycle and Pedestrian

Facility and Segment From	To	Existing System Distance (mi)	Cross-Section lanes	Cross-Section (ft)	Proposed System Type	Proposed System Cross-Section	Other Maps
NC 73							
NC 27	Will Schronce Road (SR 1314)	2.07	2	22	On-road	B-1	
Will Schronce Road (SR 1314)	Reinhardt Circle (SR 1509)	0.58	2	24	On-road	B-1	
Reinhardt Circle (SR 1509)	Trinity Church Road (SR 1355)	1.00	2	24	On-road	B-4	
Trinity Church Road (SR 1355)	0.65 mi. east of Brevard Place Road (SR 1360)	3.21	2	22	On-road	B-4	
0.65 mi. east of Brevard Place Road (SR 1360)	Ingleside Farm Road (SR 1383)	2.34	2	24	On-road	B-1	
Ingleside Farm Road (SR 1383)	NC 16	2.36	2	24	On-road	B-1	
NC 16	Pilot Knob Road (SR 1394)	0.38	2	24	On-road	B-1	
Pilot Knob Road (SR 1394)	Club Drive (SR 1395)	1.16	2	24	On-road	B-1	
Club Drive (SR 1395)	Mecklenburg County Line	1.16	2	24	On-road	B-1	
NC 182							
Cleveland County Line	NC 274	2.63	2	18	On-road	B-4	
NC 274	Leonhardt Road (SR 1167)	2.02	2	20	On-road	B-4	
Leonhardt Road (SR 1167)	Shoal Road (SR 1002)	1.66	2	20	On-road	B-4	
Shoal Road (SR 1002)	Leonards Fork Church Road (SR 1179)	1.44	2	20	On-road	B-4	
Leonards Fork Church Road (SR 1179)	Howards Creek Road (SR 1187)	1.51	2	20	On-road	B-4	
Howards Creek Road (SR 1187)	George Brown Road (SR 1180)	0.57	2	20	On-road	B-4	
George Brown Road (SR 1180)	Gainsville Church Road (SR 1181)	0.88	2	20	On-road	B-4	
Gainsville Church Road (SR 1181)	NC 27	1.32	2	20	On-road	B-4	
NCDOT Rail Corridor Preservation							
South of Maiden	North of Newton	6.60	N/A	100	Off-road	B-5	
Northbrook III School Road (SR 1114)							
NC 10	Northbrook School Road (SR 1107)	0.32	2	20	On-road	B-4	
Northbrook School Road (SR 1107)	NC 27	3.87	2	20	On-road	B-4	
Old NC 18 (SR 1100)							
Cleveland County Line	NC 18	1.38	2	18	On-road	B-4	
Optimist Club Road (SR 1380)							
Little Egypt Road (SR 1386)	Smith Road (SR 1387)	1.49	2	20	On-road	B-3	

The Other Maps column means that these facilities are included on other Comprehensive Transportation Plan elements and these elements should be reviewed.

Highway  Public Transportation and Rail  Bicycle  Pedestrian 

Bicycle and Pedestrian

Facility and Segment		Existing System			Proposed System		
From	To	Distance (mi)	Cross-Section lanes	Cross-Section (ft)	Type	Cross-Section	Other Maps
Reepsville Road (SR 1113)							
Northbrook III School Road (SR 1114)	Hulls Grove Church Road (SR 1111)	2.07	2	20	On-road	B-4	
Hulls Grove Church Road (SR 1111)	Cat Square Road (SR 1002)	2.50	2	20	On-road	B-4	
Cat Square Road (SR 1002)	Johnson Road (SR 1208)	2.28	2	20	On-road	B-4	
Johnson Road (SR 1208)	Seagletown Road (SR 1205)	2.53	2	20	On-road	B-4	
Seagletown Road (SR 1205)	Killian Road (SR 1008)	2.66	2	20	On-road	B-4	
Webbs Road (SR 1379)							
NC 16	Lake Norman	2.50	2	N/A	On-road	B-3	
West Webbs Road Path							
NC 16	West Fairfield Forest Road Path	1.86	N/A	N/A	Off-road	B-5	
West Fairfield Forest Road Path	Optimist Club Road (SR 1380)	1.00	N/A	N/A	Off-road	B-5	
West Fairfield Forest Road Path							
NC 16	West Webbs Road Path	0.78	N/A	N/A	Off-road	B-5	

The Other Maps column means that these facilities are included on other Comprehensive Transportation Plan elements and these elements should be reviewed.

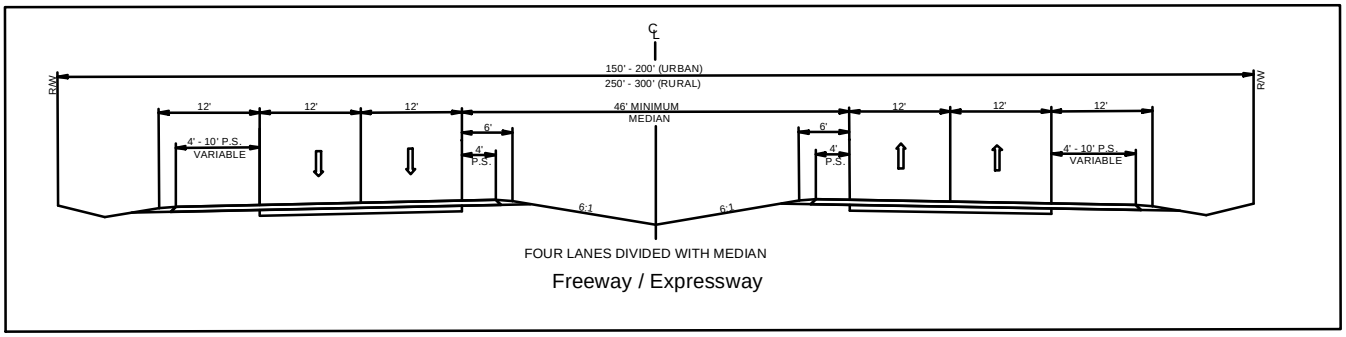
Highway Public Transportation and Rail Bicycle Pedestrian

APPENDIX D

Typical
Comprehensive
Transportation
Plan
Cross-Sections

APPENDIX D:
TYPICAL HIGHWAY CROSS SECTIONS

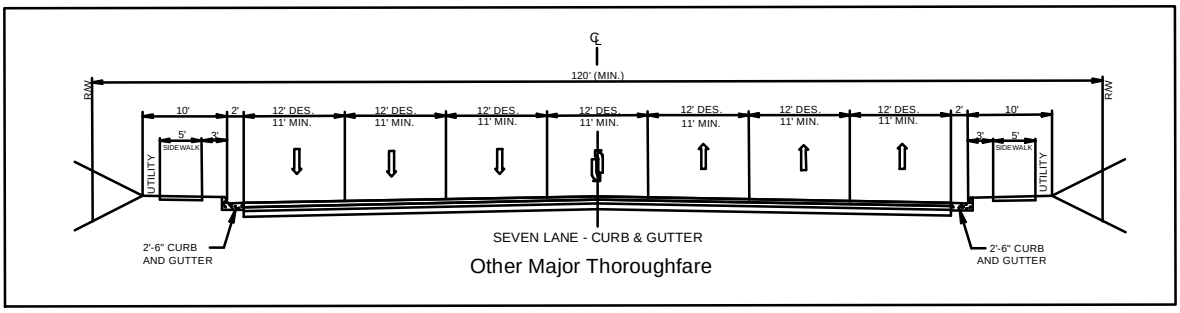
A



FOUR LANES DIVIDED WITH MEDIAN

Freeway / Expressway

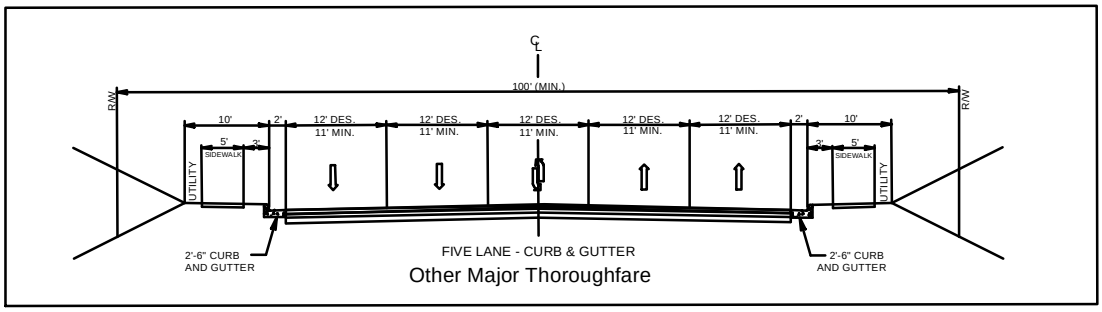
B



SEVEN LANE - CURB & GUTTER

Other Major Thoroughfare

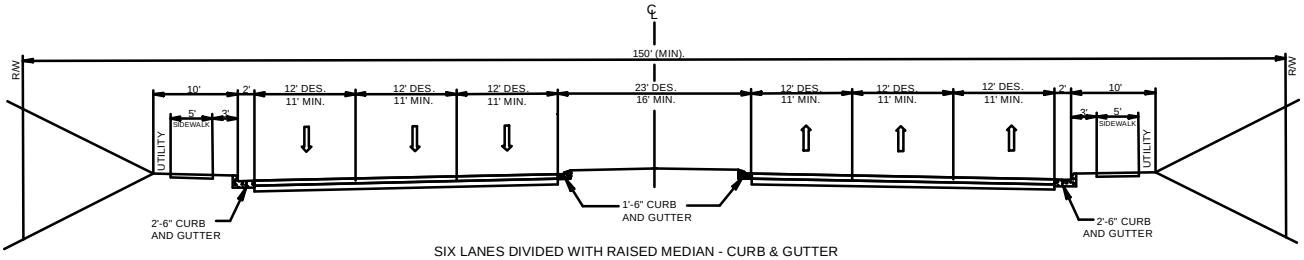
C



FIVE LANE - CURB & GUTTER

Other Major Thoroughfare

D



SIX LANES DIVIDED WITH RAISED MEDIAN - CURB & GUTTER

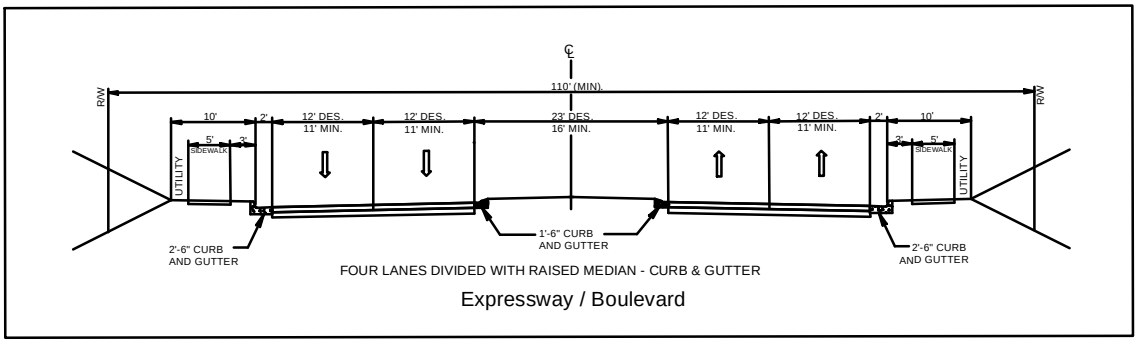
Expressway / Boulevard

revised 04-01-05

APPENDIX D:

TYPICAL HIGHWAY CROSS SECTIONS

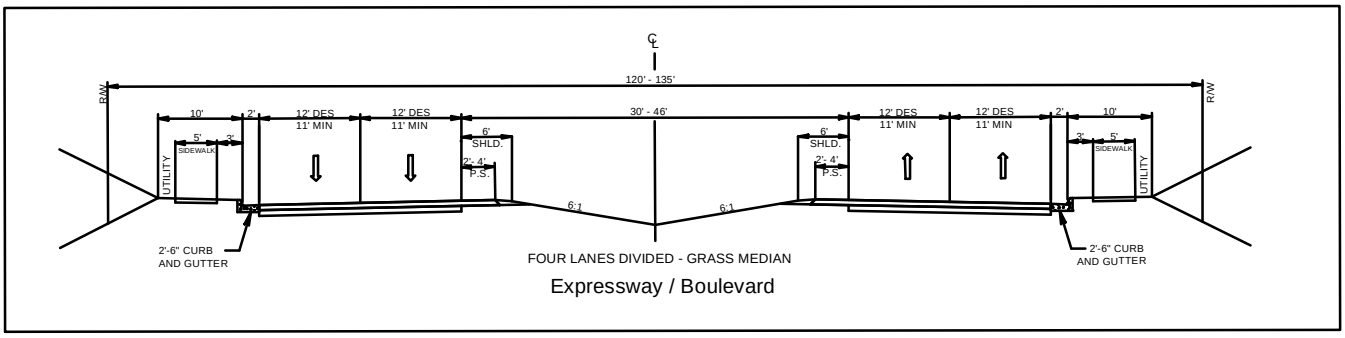
E



FOUR LANES DIVIDED WITH RAISED MEDIAN - CURB & GUTTER

Expressway / Boulevard

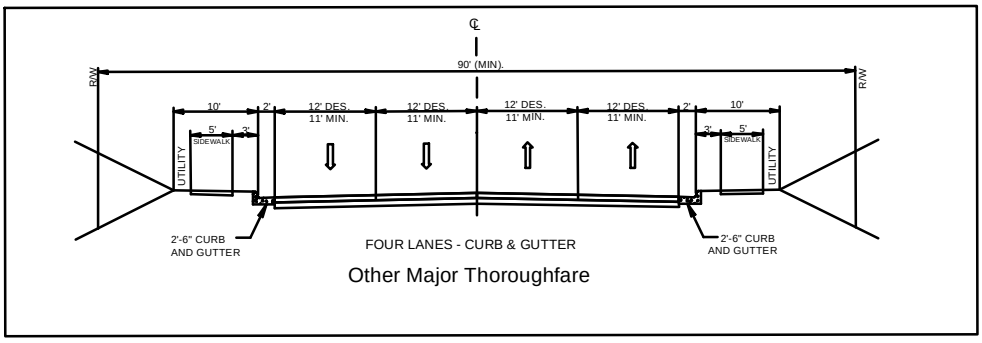
F



FOUR LANES DIVIDED - GRASS MEDIAN

Expressway / Boulevard

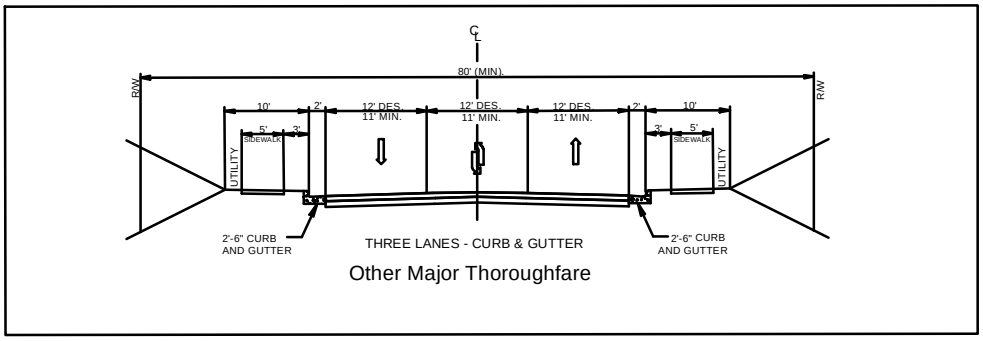
G



FOUR LANES - CURB & GUTTER

Other Major Thoroughfare

H



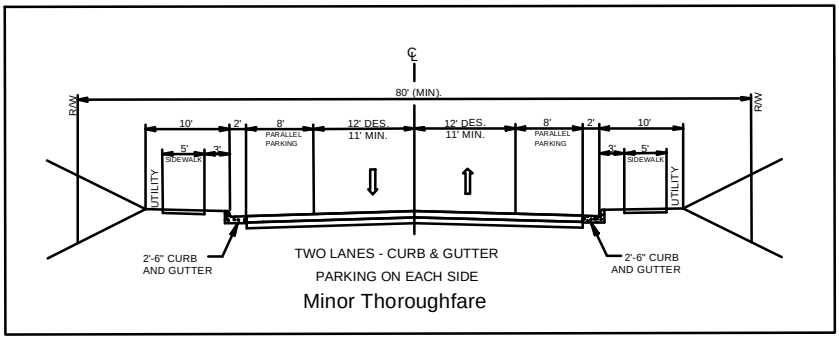
THREE LANES - CURB & GUTTER

Other Major Thoroughfare

APPENDIX D:

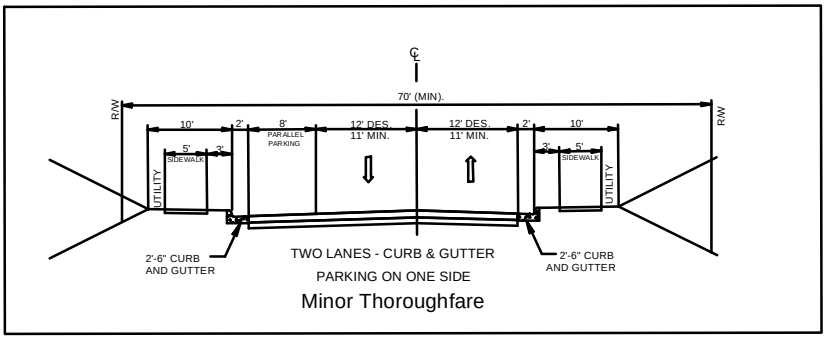
TYPICAL HIGHWAY CROSS SECTIONS

I



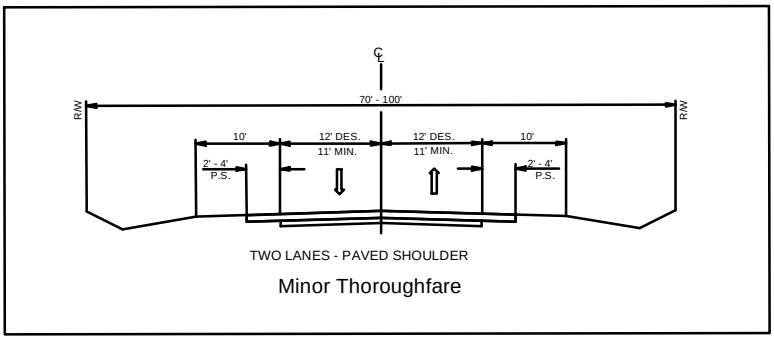
TWO LANES - CURB & GUTTER
PARKING ON EACH SIDE
Minor Thoroughfare

J



TWO LANES - CURB & GUTTER
PARKING ON ONE SIDE
Minor Thoroughfare

K

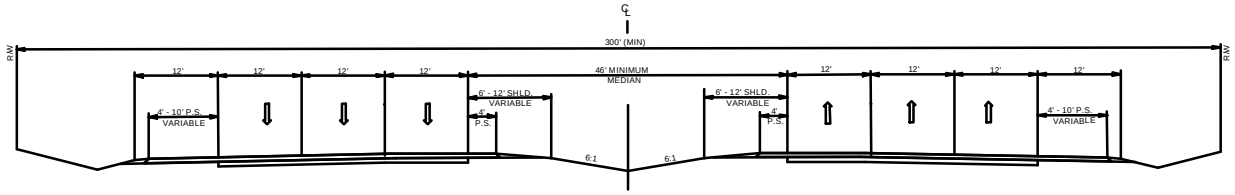


TWO LANES - PAVED SHOULDER
Minor Thoroughfare

APPENDIX D:

TYPICAL HIGHWAY CROSS SECTIONS

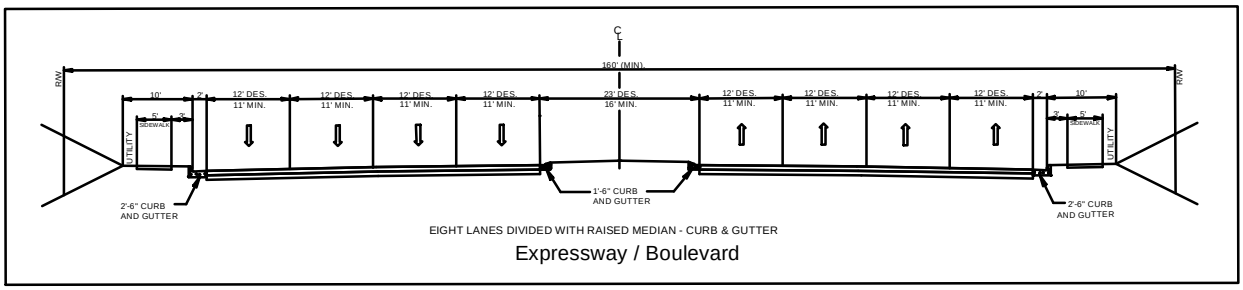
L



SIX LANES DIVIDED WITH GRASS MEDIAN

Freeway / Expressway

M



EIGHT LANES DIVIDED WITH RAISED MEDIAN - CURB & GUTTER

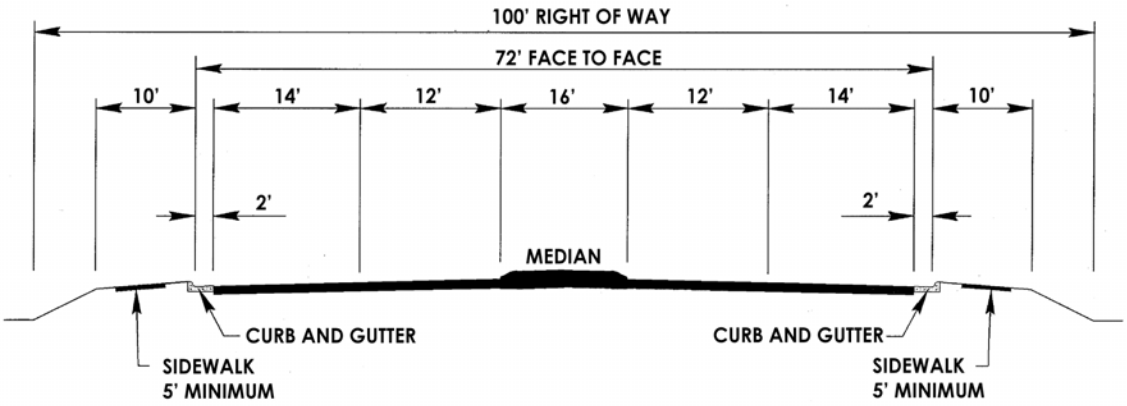
Expressway / Boulevard

Typical Bicycle Cross Sections

WIDE CURB LANES

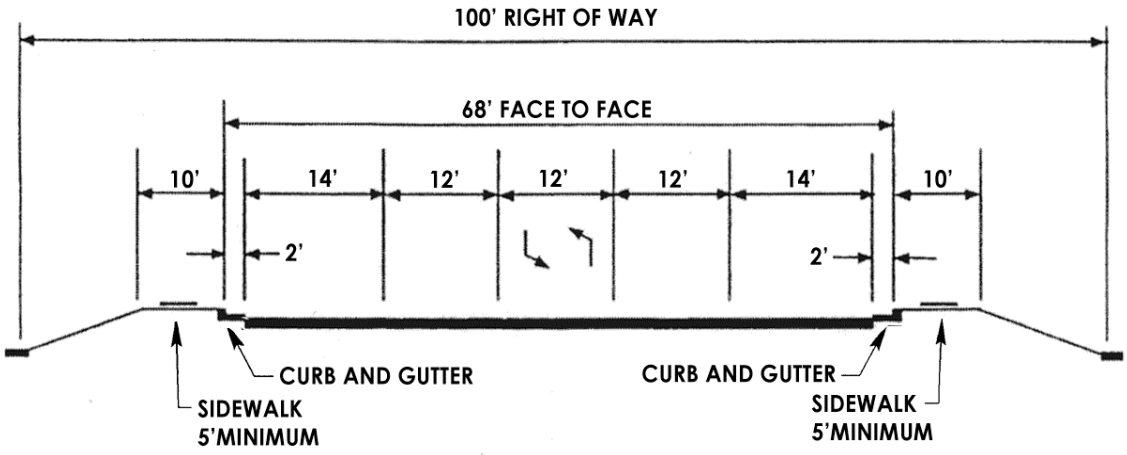
B-1 4-LANE MEDIAN DIVIDED TYPICAL SECTION

With Wide Outside Lanes



B-2 5-LANE TYPICAL SECTION

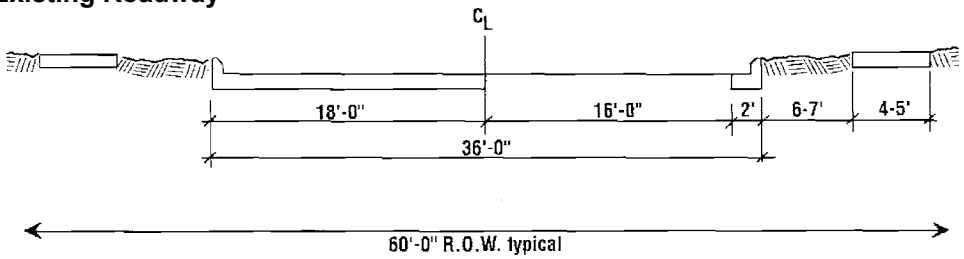
With Wide Outside Lanes



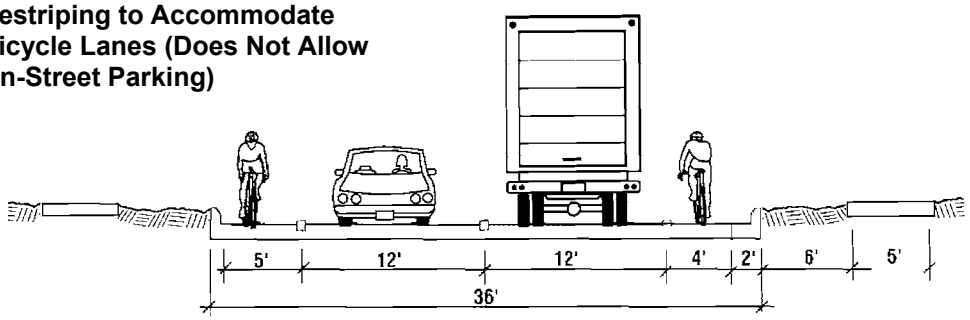
Typical Bicycle Cross Sections

B-3 BICYCLE LANES ON COLLECTOR STREETS

Existing Roadway



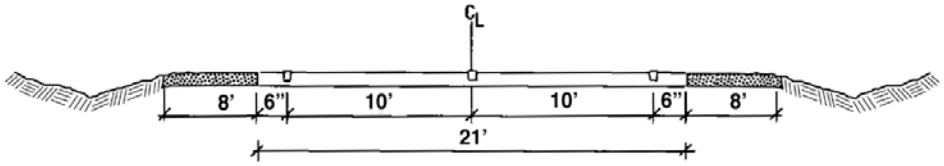
Restriping to Accommodate Bicycle Lanes (Does Not Allow On-Street Parking)



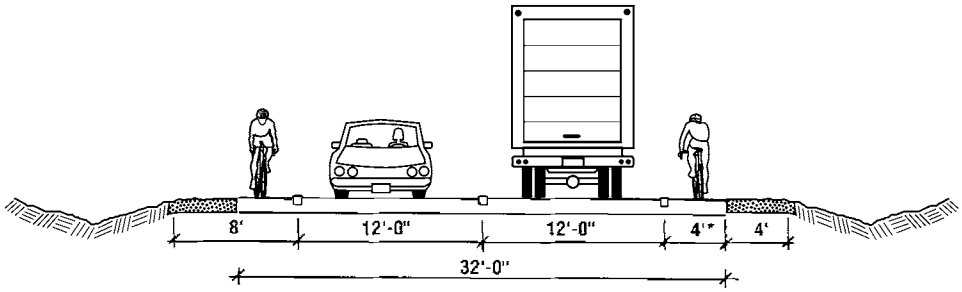
Typical Bicycle Cross Sections

B-4 WIDE PAVED SHOULDERS

Existing Roadway



Roadway Retrofitted with 4-Ft Paved Shoulders

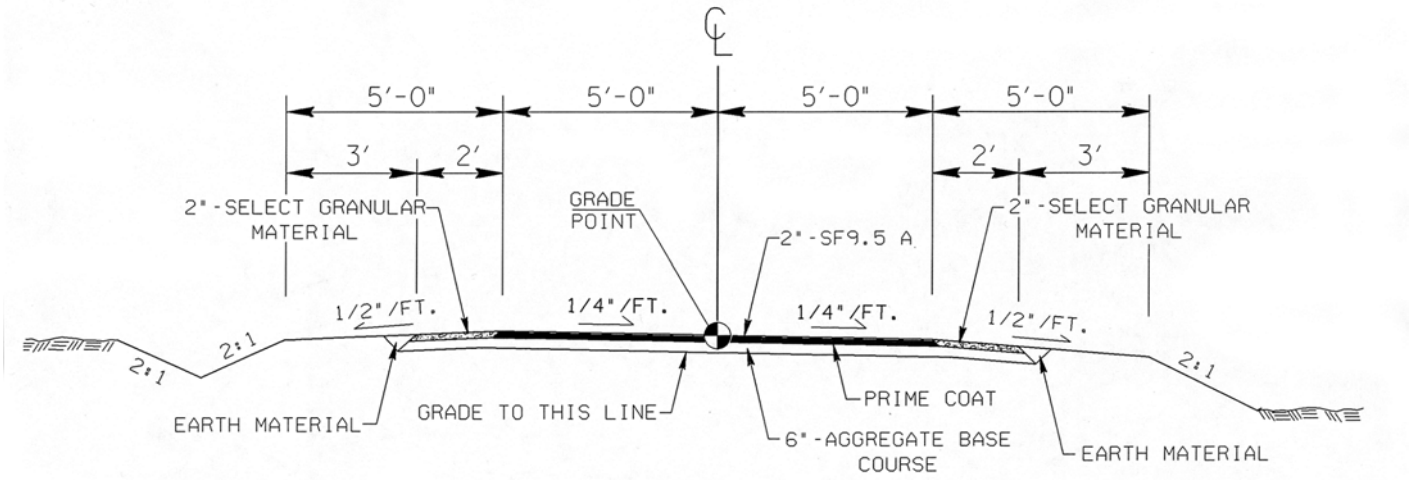


* If speeds are higher than 40 mph, shoulder widths greater than 4' are recommended.

Typical Bicycle Cross Sections

B-5 RECOMMENDED TYPICAL SECTION OF 10-FT ASPHALT PATHWAY

With 2-Ft Select Material Shoulder



APPENDIX E

Definitions
Of
Environmental
Status
Codes

Definitions Of Environmental Status Codes: Natural Heritage Program List

North Carolina Status		Description for Plants*
E	**Endangered**	"Any species or higher taxon of plant whose continued existence as a viable component of the States flora is determined to be in jeopardy" (GS 19B 106: 202.12). (Endangered species may not be removed from the wild except when a permit is obtained for research, propagation, or rescue which will enhance the survival of the species).
T	**Threatened**	"Any resident species of plant which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range" (GS 19B 106: 202.12). (Regulations are the same as for Endangered Species).
SC	**Special Concern**	"Any species of plant in North Carolina which requires monitoring but which may be collected and sold under regulations adopted under the provisions of [the Plant Protection and Conservation Act]" (GS 19B 106:202.12). (Special Concern species which are not also listed as Endangered or Threatened may be collected from the wild and sold under specific regulations. Propagated material only of Special Concern species which are also listed as Endangered or Threatened may be traded or sold under specific regulations.)
C	**Candidate**	Species which are very rare in North Carolina, generally with 1-20 populations in the state, generally substantially reduced in numbers by habitat destruction (and sometimes also by direct exploitation or disease). These species are also either rare throughout their ranges (fewer than 100 populations total) or disjunct in North Carolina from a main range in a different part of the country or world. Also included are species which may have 20-50 populations in North Carolina, but fewer than 50 populations worldwide. These are species which have the preponderance of their distribution in North Carolina and whose fate depends largely on their conservation here. Also included are many species known to have once occurred in North Carolina but with no known extant occurrences in the state (historical or extirpated species); if these species are relocated in the state, they are likely to be listed as Endangered or Threatened. If present land use trends continue, candidate species are likely to merit listing as Endangered or Threatened.

* Plant statuses are determined by the Plant Conservation Program (NC Department of Agriculture) and the Natural Heritage Program (NC Department of Environment and Natural Resources). Endangered, Threatened, and Special Concern species are protected by state law (Plant Protection and Conservation Act, 1979). Candidate and Significantly Rare designations indicate rarity and the need for population monitoring and conservation action. Note that plants can have a double status, e.g., E-SC, indicates that while the plant is endangered, it is collected or sold under regulation.

SR	**Significantly Rare**	Species which are very rare in North Carolina, generally substantially reduced in numbers by habitat destruction (and sometimes also by direct exploitation or disease). These species are generally more common somewhere else in their ranges, occurring in North Carolina peripherally to their main ranges, mostly in habitats which are unusual in North Carolina. Also included are some species with 20-100 populations in North Carolina, if they also have only 50-100 populations rangewide and are declining.
-L	**Limited**	The range of the species is limited to North Carolina and adjacent states (endemic or near endemic). These are species which may have 20-50 populations in North Carolina, but fewer than 50 populations rangewide. The preponderance of their distribution is in North Carolina and their fate depends largely on conservation here. Also included are some species with 20-100 populations in North Carolina, if they also have only 50-100 populations rangewide and declining.
-T	**Throughout**	These species are rare throughout their ranges (fewer than 100 populations total)
-D	**Disjunct**	The species is disjunct to NC from a main range in a different part of the country or world.
P	**Proposed**	A species which has been formally proposed for listing as Endangered, Threatened, or Special Concern, but has not yet completed the legally mandated listing process.
- P	**Peripheral**	The species is at the periphery of its range in NC. These species are generally more common somewhere else in their ranges, occurring in North Carolina peripherally to their main ranges, mostly in habitats which are unusual in North Carolina.

North Carolina Status		**Description for Animals[2]**
E	**Endangered**	"Any native or once-native species of wild animal whose continued existence as a viable component of the State's fauna is determined by the Wildlife Resources Commission to be in jeopardy or any species of wild animal determined to be an 'endangered species' pursuant to the Endangered Species Act." (Article 25 of Chapter 113 of the General Statutes; 1987).

[2] Animal statuses are determined by the Wildlife Resources Commission and the Natural Heritage Program. Endangered, Threatened, and Special Concern species of mammals, birds, reptiles, amphibians, freshwater fishes, and freshwater and terrestrial mollusks have legal protection status in North Carolina (Wildlife Resources Commission). The Significantly Rare designation indicates rarity and the need for population monitoring and conservation action.

T	**Threatened**	"Any native or once-native species of wild animal which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range, or one that is designated as a threatened species pursuant to the Endangered Species Act." (Article 25 of Chapter 113 of the General Statutes; 1987).
SC	**Special Concern**	"Any species of wild animal native or once-native to North Carolina which is determined by the Wildlife Resources Commission to require monitoring but which may be taken under regulations adopted under the provisions of this Article." (Article 25 of Chapter 113 of the General Statutes; 1987).
SR	**Significantly Rare**	Any species which has not been listed by the N.C. Wildlife Resources Commission as an Endangered, Threatened, or Special Concern species, but which exists in the state in small numbers and has been determined by the N.C. Natural Heritage Program to need monitoring. (This is a N.C. Natural Heritage Program designation.) Significantly Rare species include "peripheral" species, whereby North Carolina lies at the periphery of the species' range (such as Hermit Thrush). The designation also includes marine and estuarine fishes identified as "Vulnerable" by the N.C. State Museum of Biological Sciences (Ross et al., 1988, Endangered, Threatened, and Rare Fauna of North Carolina. Part II. A Reevaluation of the Marine and Estuarine Fishes).
EX	**Extirpated**	A species which is no longer believed to occur in the state.
P_	**Proposed**	Species has been proposed by a Scientific Council as a status (Endangered, Threatened, Special Concern, Watch List, or for De-listing) that is different from the current status, but the status has not yet been adopted by the Wildlife Resources Commission and by the General Assembly as law. In the lists of rare species in this book, these proposed statuses are listed in parentheses below the current status. Only those proposed statuses that are different from the current statuses are listed.

Federal Status **Description**[3]

[3] These statuses are designated by the US Fish and Wildlife Service. Federally listed Endangered and Threatened species are protected under the provisions of the Endangered Species Act of 1973, as

E	**Endangered**	A taxon "which is in danger of extinction throughout all or a significant portion of its range" (Endangered Species Act, Section 3).
T	**Threatened**	A taxon "which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range" (Endangered Species Act, Section 3).
EXN	**Endangered, nonessential experimental population.**	The Endangered Species Act permits the reintroduction of endangered animals as "nonessential experimental" populations. Such populations, considered nonessential to the survival of the species, are managed with fewer restrictions than populations listed as endangered.
T (S/A)	**Threatened due to Similarity of Appearance.**	The Endangered Species Act authorizes the treatment of a species (subspecies or population segment) as threatened even though it is not otherwise listed as threatened if: (a) The species so closely resembles in appearance a threatened species that enforcement personnel would have substantial difficulty in differentiating between the listed and unlisted species; (b) the effect of this substantial difficulty is an additional threat to a threatened species; and (c) such treatment of an unlisted species will substantially facilitate the enforcement and further the policy of the Act. The American Alligator has this designation due to similarity of appearance to other rare crocodilians. The Bog Turtle (southern population) has this designation due to similarity of appearance to Bog Turtles in the threatened northern population.
C	**Candidate**	A taxon under consideration for which there is sufficient information to support listing. This category was formerly designated as a Candidate 1 (C1) species.
PE	**Proposed Endangered**	Species has been proposed for listing as endangered.
PD	**Proposed De-listed**	Species has been proposed for de-listing.
FSC	**Federal "Species of Concern"**	Formerly defined as a taxon under consideration for which there is insufficient information to support listing; formerly designated as a Candidate 2 (C2) species.

State Ranks **Description**

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amended through the 100th Congress. Unless otherwise noted, definitions are taken from the *Federal Register*, Vol. 56, No. 225, November 21, 1991 (50 CFR Part 17).

S1	Critically imperiled in North Carolina because of extreme rarity or otherwise very vulnerable to extirpation in the state.
S2	Imperiled in North Carolina because of rarity or otherwise vulnerable to extirpation in the state.
S3	Rare or uncommon in North Carolina
S4	Apparently secure in North Carolina, with many occurrences.
S5	Demonstrably secure in North Carolina and essentially ineradicable under present conditions.
SH	Of historical occurrence in North Carolina, perhaps not having been verified in the past 25 years, and suspected to be still extant in the state.
SR	Reported from North Carolina, but without persuasive documentation for either accepting or rejecting the report.
SX	Believed to be extirpated from North Carolina.
SU	Possibly in peril in North Carolina, but status uncertain; more information is needed.
S?	Unranked, or rank uncertain.
S_B	Rank of breeding population in the state. Used for migratory species only.
S_N	Rank of non-breeding population in the state. Used for migratory species only.
SZ_	Population is not of significant conservation concern; applies to transitory, migratory species.

APPENDIX F

Public Involvement

Public Involvement

The public involvement drop-in session was advertised in the Lincoln Times-News on May 6 and May 13, 2005 shown in **Figure F-4**. The Lincoln Times-News also wrote two other articles about the drop-in sessions, one before the meeting and the other as a follow-up to the meeting as shown in **Figures F-4** and **F-5**.

A total of 14 people attended the drop-in sessions and made comments on the recommended Lincoln County CTP. These people represented Lincolnton Planning Department, Centralina Council of Governments, Lincoln Natural Resource Committee (LNRC), Lincoln County Board of Commissioners, Catawba River Keeper Foundation, and citizens.

As shown in **Figures F-1, F-2**, and **F-3**, personnel from NCDOT and Lincoln County walked each attendee around the room explaining the significance of each CTP map. Attendees wrote their comments on post-it notes and attached those to the CTP maps. They asked questions directly to personnel when walking around the room. These questions and comments are summarized below, with responses as appropriate.

Questions

1. *During rush hour, NC 16 and NC 73 is backed up in all directions. Are there ways to mitigate that problem now?* A NC Moving Ahead project is currently being designed at this intersection. This will add turn lanes with extensive storage to accommodate traffic and upgrade traffic signals, as well. At this time work is scheduled for 2006.

2. *If roadwork is not occurring, why does NCDOT not remove the roadwork sign?* Road construction signs are always in place to warn one that you are riding in a work zone. Signs such as flagman ahead and right lane closed ahead signs are removed daily.

3. *Speed limit at East Lincoln High School (EL) is posted at 55 mph and beyond that point it is reduced to 45 mph. Why is it not 45 mph in front of high school?* NCDOT will investigate this.

4. *Could you make NC 73 55 mph not fluctuate between 55 mph to 45 mph?* The speed zone is dependent on the following: condition of roadway, condition of shoulder, horizontal and vertical alignment, roadside development, and 85% percentile of speed in the area.

5. *Could the community pay for the reflectors for the Westport area and NC 16 or could someone install reflectors?* Work is performed each year to install raised or

snowplowable markers based on average daily traffic, horizontal and vertical alignment, etc.

6. *Cut through off NC 27 behind Mitchem's Restaurant. Is it possible to close the road?* A petition for road abandonment signed by all property owners adjacent to the roadway should be submitted to the NCDOT District Engineer. NCDOT, property owners and the County Commissioners have to approve of the abandonment.

7. *Does the Highway element of the Comprehensive Transportation Plan support evacuation routes for McGuire Nuclear Station at projected population levels long term?* Based on the projections, the evacuation routes can carry the projected volumes of traffic.

8. *Pilot Knob Road is a cut through. Should it be upgraded?* Pilot Knob Road was not included in the analysis for this study because it is not a functionally classified road. However, this comment was passed on to the Division Engineer for their information.

Issues to address

1. *There is a bad curve at Buffalo Shoals and Bethel Church Road, which is in the Lincolnton area.* Division Traffic Engineer will research this issue.

2. *Look at signal timing at intersections of NC 27 and NC 150 west.* Division Traffic Engineer will research this issue.

3. *Reduce speed limit on NC 18 from SR 1139 to NC 27.* Need to know more about this request. SR 1139 does not intersect with NC 18. DOT will research if more info is given with the request.

4. *Designate cross walks for existing NC 16, Unity Church Road, Denver, and Waterside.* NCDOT Division 12 will investigate these areas. This area must meet the NCDOT standard sidewalk and site distance requirements in order to be approved.

5. *Based on the proposed Boulevard facility for NC 73, I am concerned about the pre-school 5-star entrance and exit routes SR 1796 and NC 73.* This comment has been addressed in Chapter 2 (page 10).

6. *Need to widen NC 182 because it is currently about 18 feet. Howards Creek Bridge needs to be straightened out.* NC 182 is recommended as a needs improvement facility for the highway and bicycle maps of the CTP.

7. *Webbs Road: Lots of new development; needs improvement to road and bike lanes (connectivity to NC 16 and Lake Norman bike path).* This is addressed on the bicycle map of the CTP.

8. *I thought there is an interchange at Ingleside Farm Road and NC 73? Show portion between NC 73 and Old Plank Road on CTP?* There is an interchange at Ingleside Farm Road and the highway map was revised to show this interchange and include Ingleside Farm Road in its entirety.

9. *I want the East Lincoln Shuttle system to connect to express bus routes like Davidson had.* The Lincoln County Planning Department has noted this comment.

10. *There should be a mass transit connection between Denver and Huntersville.* Lincoln County would need to coordinate with CATS to provide a service from Huntersville to Denver.

11. *There needs to be more options for CATS buses at different times such as leaving later in the evening.* This comment was forwarded to the CATS.

12. *All of Webbs Road should be designated as an on-road bicycle facility.* This is now shown as an on-road bicycle facility on the bicycle map of the CTP, which shows the connectivity from NC 16 to the Lake Norman Bicycle Route.

13. *All of Fairfield Forest Road should be designated as an on-road bicycle facility because of the library, shopping center, and gardens.* This is now shown as an on-road bicycle facility on the bicycle map of the CTP with the supporting information in the recommendation chapter of the report.

14. *There should be a designated off-road bicycle facility from East Recreation Center to St. James Church Road for children*. An off-road bicycle facility is shown on the bicycle map of the CTP based on the Lincoln County Comprehensive Land Use Plan in the vicinity of St. James Church Road.

Comments

NC 16 between NC 73 & NC 150 is a washboard; DOT should not allow contractors to do such poor work. This work was done by private companies due to development. NCDOT standards have changed and an approved NCDOT contractor must now complete this type of work. Testing of the asphalt both at the asphalt plant and on the finished product on the roadway is necessary. Also, a full overlay of the pavement is required if lanes are added.

There is two miles of back up at the Unity Church Road and NC 16 intersection during rush hour. Despite the AM and PM traffic peaks at this location, this intersection does not meet the warrants required for up grades.

I suggest taking NC 150 from Cherryville past Shelby and bring it back into I-85. This comment has been submitted to the Division 12 Engineer.

Old NC 16 needs improvements to it now. Moving Ahead projects on parts of NC 16 are being constructed now. Other projects are being planned on NC 16 now as a result of the NC Moving Ahead Program.

When I-77 is blocked, NC 16 becomes alternate route. Route needs to manage traffic lights when this happens. Signal timing is altered on the signals in response to these long delays.

Need to move intersections on NC 16 between NC 73 and NC 150. This comment could not be addressed due to the inability to clarify it with the attendee who submitted it.

Campground Road should be repaved. It is not on the 2005-2006 program. SR 1373 (Campground Rd) was paved in 2003. The current pavement rating of this roadway does not reflect a need for paving at this time.

Promote pedestrian access between out parcels. NCDOT strives to promote both vehicular and pedestrian access with new phases of development.

Timken gasoline trucks drive too fast on NC 27. This comment was passed on to the Lincoln County Planning Department.

There will be lots of development in this area (in the northwestern portion of Lincoln County) because of Morganton on NC 18/NC 27. This statement will be included in the report as a reason to address the recommendations on NC 18. Based on projected growth, NC 27 will be able to handle the projected volumes.

Induced traffic on NC 27 resulting from I-485 interchange. This information was considered for the projected volumes.

There are no alternate routes at Sifford Road. Accidents currently paralyze NC 16 in both directions. Thank you for the information.

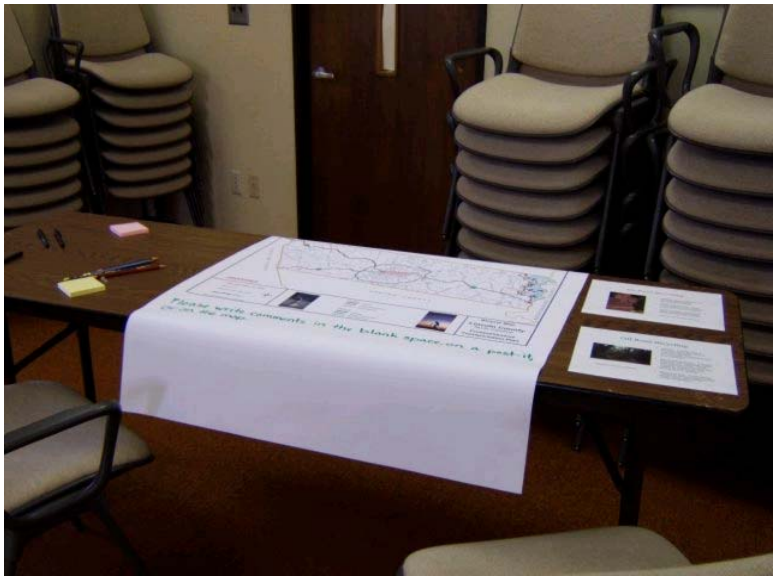
Landlocked development; land is on Mansion Dr. This comment was passed on to the Lincoln County Planning Department.

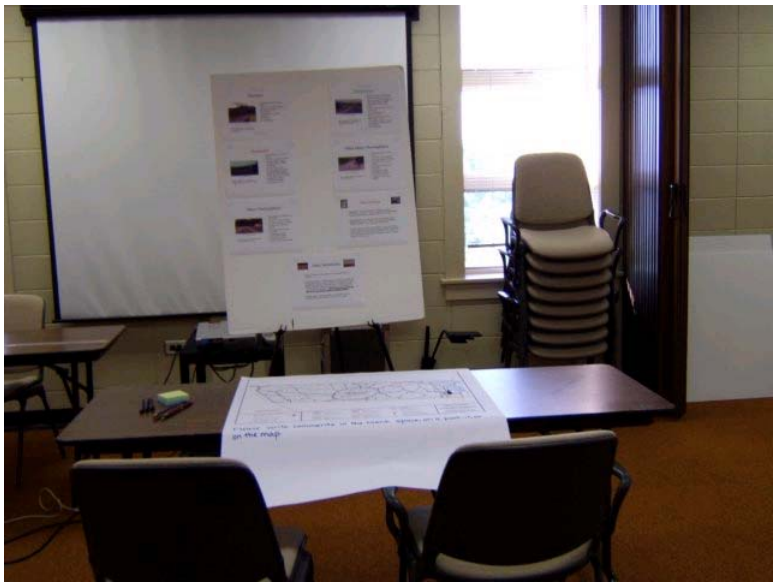
There is a mountain bike park in East Lincoln.

There are off road bike routes in all 3 major areas of the county trail system.

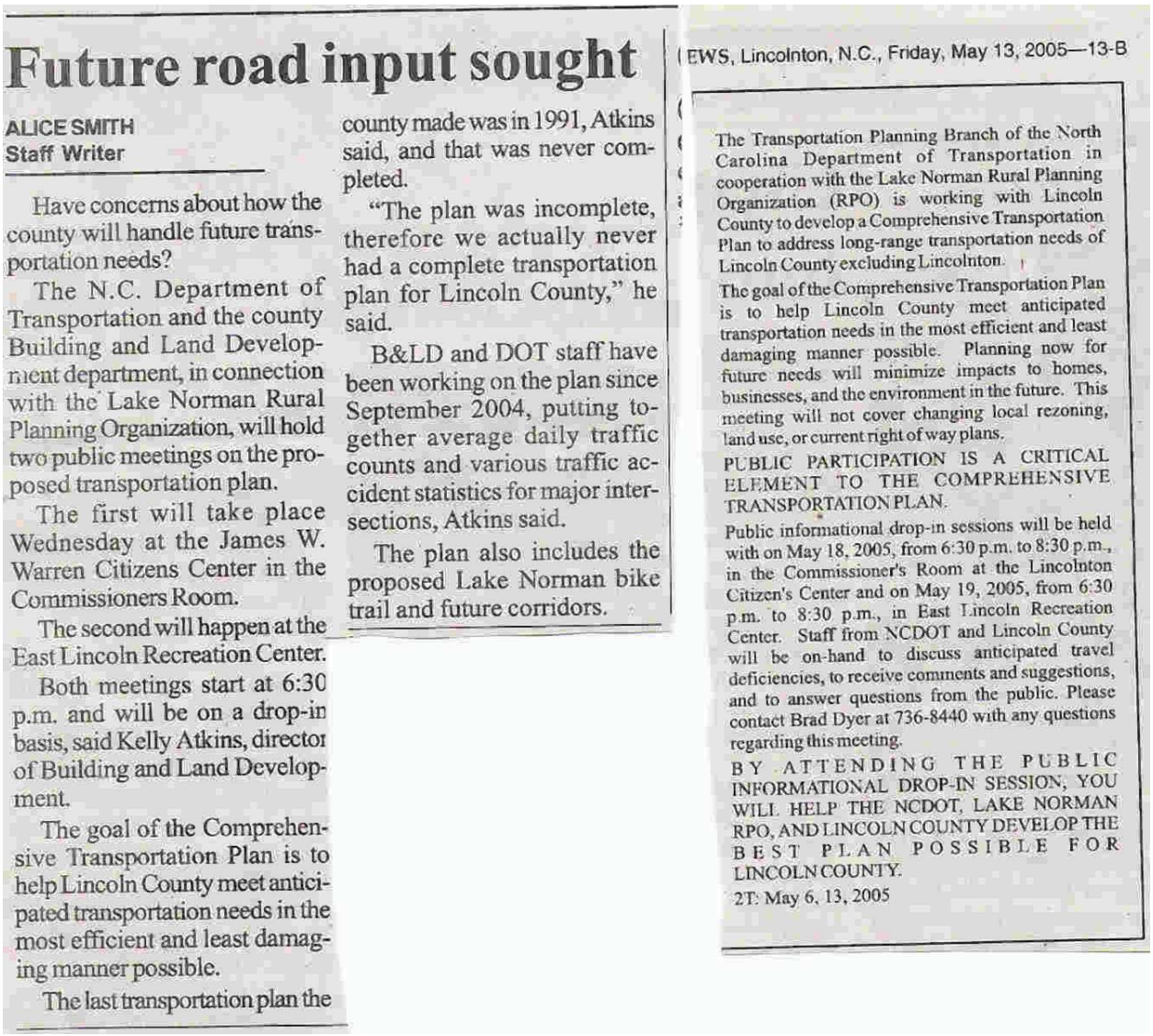
Lake Shore Road is so winding that if made into a bike route someone will get killed. Mark my word. Thank you for your comment.

Figure F-1
James Warren Citizen's Center in Lincolnton – Figure F-2





East Lincoln Community Center – Figure F-3



Future road input sought

ALICE SMITH
Staff Writer

Have concerns about how the county will handle future transportation needs?

The N.C. Department of Transportation and the county Building and Land Development department, in connection with the Lake Norman Rural Planning Organization, will hold two public meetings on the proposed transportation plan.

The first will take place Wednesday at the James W. Warren Citizens Center in the Commissioners Room.

The second will happen at the East Lincoln Recreation Center.

Both meetings start at 6:30 p.m. and will be on a drop-in basis, said Kelly Atkins, director of Building and Land Development.

The goal of the Comprehensive Transportation Plan is to help Lincoln County meet anticipated transportation needs in the most efficient and least damaging manner possible.

The last transportation plan the county made was in 1991, Atkins said, and that was never completed.

"The plan was incomplete, therefore we actually never had a complete transportation plan for Lincoln County," he said.

B&LD and DOT staff have been working on the plan since September 2004, putting together average daily traffic counts and various traffic accident statistics for major intersections, Atkins said.

The plan also includes the proposed Lake Norman bike trail and future corridors.

The Transportation Planning Branch of the North Carolina Department of Transportation in cooperation with the Lake Norman Rural Planning Organization (RPO) is working with Lincoln County to develop a Comprehensive Transportation Plan to address long-range transportation needs of Lincoln County excluding Lincolnton.

The goal of the Comprehensive Transportation Plan is to help Lincoln County meet anticipated transportation needs in the most efficient and least damaging manner possible. Planning now for future needs will minimize impacts to homes, businesses, and the environment in the future. This meeting will not cover changing local rezoning, land use, or current right of way plans.

PUBLIC PARTICIPATION IS A CRITICAL ELEMENT TO THE COMPREHENSIVE TRANSPORTATION PLAN.

Public informational drop-in sessions will be held with on May 18, 2005, from 6:30 p.m. to 8:30 p.m., in the Commissioner's Room at the Lincolnton Citizen's Center and on May 19, 2005, from 6:30 p.m. to 8:30 p.m., in East Lincoln Recreation Center. Staff from NCDOT and Lincoln County will be on-hand to discuss anticipated travel deficiencies, to receive comments and suggestions, and to answer questions from the public. Please contact Brad Dyer at 736-8440 with any questions regarding this meeting.

BY ATTENDING THE PUBLIC INFORMATIONAL DROP-IN SESSION, YOU WILL HELP THE NCDOT, LAKE NORMAN RPO, AND LINCOLN COUNTY DEVELOP THE BEST PLAN POSSIBLE FOR LINCOLN COUNTY.

2T: May 6, 13, 2005

Figure F-4

Residents concerned about safety, lack of pedestrian-friendly streets

Those on foot, bikes overlooked?

AMY WADSWORTH
Staff Writer

East Lincoln residents voiced their concerns on the lack of pedestrian-friendly streets in Denver and plans on the existing and the new N.C. 16 at a transportation meeting Thursday night.

The meeting was held at the East Lincoln Community Center.

Residents looked over several maps that were brought in — a transit map, a bike path map, a highway corridor map and a large aerial map of Lincoln County. Concerned residents went over the proposed transportation plan for Lincoln County.

"Many of the concerns were persistent about pedestrian accessibility," said Brad Dyer, land use coordinator for Lincoln County Building and Land Development.

"Residents who live close to the East Lincoln Community Center do not feel it is safe for their kids to walk to the park," he added.

The meeting also included Katherine English and Terry Arellano with the North Carolina Department of Transportation and Blair Israel with Centralina Council of Governments.

The 30-year plan for Lincoln County includes changes to the entire stretch of N.C. 73. The plans include changing the highway into a boulevard, which would include two or more lanes with a median. Usually the lanes are on each side of the median.

See SAFETY / 12B

SAFETY

(Continued From Page 1B)

The speed limit is typically 30 to 55 miles on a boulevard.

Plans to change N.C. 150 into a boulevard are also in discussion.

Maps also showed existing bike paths on N.C. 73, N.C. 10 and N.C. 182. Improvements on those may occur.

A map also showed the proposed bike trail around Lake Norman.

Figure F-5